

TANKER Operator

APRIL 2011

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Features:

- MEG on the brink
- Training budget vital
- CSR high on agenda
- Bunker testing role
- Bilge data recorder
- New cargo tank coating

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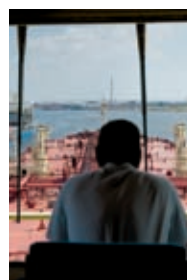


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Front cover photo

From 1st July, new regulations from the IMO will require new vessels of over 150 gt to carry a bridge navigational watch alarm system (BNWAS). The overall aim is to reduce the risks of accidents due to an incapacitated officer on watch (OOW). Several type approved BNWAS systems are available, including those from Martek Marine and Uni-Safe. Their purpose is to monitor bridge activity and detect operator disability.

It is risky out there!

The shipping industry is not immune to 'country risk,' blogged shipping guru Clay Maitland a couple of months ago.

One story, dated 18 February, tells us that General National Maritime Transport of Libya has just purchased an 180,000 dwt capesize drybulker. Well, I wish the company the best of luck, Maitland said.

By the beginning of April, we were hearing that the Libyan oil export ports were firmly shut, as the rebels battled pro-Gaddafi forces to and fro along the coastal cities.

The current unrest in the Middle East and North Africa is of more than slight interest to shipowners. The ferment in the Middle East and North Africa, and the growing aggressiveness (and violence) of Somali pirates are a compound scenario for instability in our industry, Maitland blogged. Perhaps, a bit on an understatement in hindsight.

Commercial shipping runs on oil. While the present threat of disruption is likely to be temporary, the underlying trends are a real threat to what is still a fragile global recovery. The shipping industry has not, historically, been good at hedging its bets against rising fuel costs and supply bottlenecks. In that, we are no different from most other businesses. What makes us particularly vulnerable is that we have little of the 'think tank' mentality that characterises the more sophisticated markets analysts of, say, the Warren Buffet type, Maitland thought. However, a few observations may be helpful.

First, it is becoming apparent that even the threat of interruption in supply is likely to cause price instability and inflation. Speculation is driving the rise in oil and iron ore prices – both highly consequential to those who own or operate ships.

To avoid damaging swings in the price of bunkers, we must develop stocks of fuel that will last for more than a few weeks. This means that production must in fact increase, which in turn requires that more offshore oilfields must be developed.

The key is to diversify global oil supplies beyond the shaky regimes of Africa and the Middle East. The risks and weaknesses inherent in the existing oil supply chain are growing, and until governments cope with rising demand, led by China, the shaky economic recovery rests on a very rickety oil market, he said.

Today, more than 40 mill barrels of oil a day are traded internationally, and this amount is growing. It means that supply and point of delivery, and therefore use, are increasingly far apart. What new supplies there are, continue to be produced in states that are hardly stable democracies with the possible exception of Brazil.

Even Saudi Arabia, a trusted source of reserve capacity as well as actual production, is now seen as being potentially unstable. This realisation is a major reason for oil price instability and inflation, of the type we are now seeing.

The implications for shipping are clearer by the day. And "what does this have to do with piracy?" you may ask. The fact is, a major interruption of traffic flow in the Arabian Sea and the Indian Ocean would add up to two disruptions at once. You do the arithmetic, he concluded.

Of course, since Maitland's comments, we have seen the tragic events unfold in Japan plus cyclones and floods in Australia. This has led to speculation that gas could be king for a while, especially in the Asia/Pacific region.

There is even talk of the US exporting shale gas by sea, but that would fly in the face of Obama's aim of making the US more self-sufficient in energy.

However, Maitland is right. We still rely on oil more than anything else and with the price heading North, the knock-on effect is rising prices across the board. Any disruptions to the supply chain have the knock-on effect of skyrocketing prices, be they for bunkers, or consumer goods.

We probably haven't seen the last of the rumblings of discontent in certain Middle Eastern countries. Just look at Yemen. If this creeping revolution does hit Saudi Arabia in a big way – batten down the hatches and shut the manifolds. Then there are the impending elections in Iran to cope with. And so the list goes on.

Robert F Kennedy said, "There is a Chinese curse which says, 'May he live in interesting times'. Like it or not, we live in interesting times..." He could not have known just how interesting these times would become. This year has already gone down in history as the most volatile, both politically and environmentally.

Perhaps the shipping industry is afflicted by that very same Chinese curse.

TO

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An insider's guide to ships' hulls and machinery

What is claimed to be a unique guide to the technical aspects of marine hull and machinery insurance - a market handling many millions of dollars' worth of claims each year - has been compiled by marine consultancy and survey company, BMT Marine & Offshore Surveys, a member of BMT Group.

Indications have already emerged that the company's new Hull & Machinery Guide* will become a standard reference publication, in the light of the welcome it has received from leading figures in the London underwriting market and beyond.

Simon Stonehouse (Brit Insurance), one of the leading hull underwriters at Lloyd's, said: "This is an essential reference guide for the marine insurance industry and a most welcome initiative. It has been many years since something of this calibre has been published and, as it's available electronically, underwriters and claims teams can refer to it whenever and wherever – a great step forward."

The publication is seen by BMT as just a part of its professional interaction with ship operators, hull insurers, P&I providers, brokers and other specialists. It is set to be of value to experienced practitioners and newcomers alike, and all in between.

"Marine survey reports frequently contain engineering terminology which can be unfamiliar to the non-engineers in the wider spectrum of the shipping industry," said the lead author, Dinos Levantis.

"In an attempt to bridge this gap we have

produced this guide, which covers some of the common terminology often encountered in survey reports for ships, their engines and their operations," he explained.

Piraeus-based Levantis is BMT business director for the Mediterranean and Eastern Europe region. He is a naval architect, surveyor and marine engineer, with substantial experience in casualty investigations.

Rather than seek to compile what would be an unwieldy dictionary of the entire terminology, Levantis and his colleagues in Piraeus and other BMT offices have produced a small, easy-to-use handbook with clear illustrations of ship components, which figure often in insurance claims.

The book is divided into three parts - general, hull, machinery. A blank page has been left next to each easily understood illustration for users to write additional notes and queries they may have which the company's technical staff can advise on.

The team has drawn on material from 24 authoritative sources to produce more than 70 pages of diagrams and explanations of terms relating to the key functions of ships – including those such as rocker arm, pushrod, scavenger air inlet, sterntube aft bearing, crosshead bearings.

Users of the guide will gain greater insight into questions of propulsion, steering gear, engines, and boilers. The importance of factors such as ocean wave geometry is underlined: "In a seaway, the vessel's structure will be continuously subjected to deformation in all directions," said the guide.

"The generated stresses will alternate and the material forming the structure will

therefore be subjected to fatigue. A well-designed structure having a well-conceived geometry and being of suitable material is expected to withstand the fatigue stresses for a substantial period of time," the guide explained.

This is the first version of the booklet and Levantis said that he would welcome suggestions from users, which could enhance future editions.

BMT Marine & Offshore Surveys incorporates the casualty expertise of The Salvage Association and BMT Murray Fenton. The group handles all types of vessels up to VLCCs.

For several years, the company has been building on its professional relationships with insurance specialists through its shipyard familiarisation courses, what it terms its 'assault courses', organised for small groups of underwriters and brokers, and based around visits to shipyards and other facilities in Greece and the UK.

Managing director Nigel Clark said: "The hands-on familiarisation visits we have arranged so far have proved so successful and well received that we are planning to run additional courses this year and to extend them to more of our overseas offices.

"As well as being an extremely informative document for everyday use, the new guide will also be an excellent reference tool for those attending the courses," he concluded. ■

**The guide can be downloaded from www.bmtmarinerisk.com via the documents and resources section.*

New player in Brazilian bunker market

OW Bunker, one of the world's leading suppliers and traders of marine fuel, has launched an operation in Brazil.

The move is part of its continued strategy to develop its operations in South America following the recent commencement of physical operations in Panama and Uruguay, the company said.

Based in Rio de Janeiro, a full range of quality products are offered, including low sulphur fuel oil, an important factor following the impending introduction of an ECA in North American waters.

Local customers will also benefit from OW

Bunker's specific expertise in offshore delivery. With a presence in Brazil, Panama, Uruguay and Chile, the company is well positioned to cover the whole of the west coast of South America.

Customers will also benefit from OW Bunker's in-depth knowledge of the local market, strong relationships with local suppliers, wholly supported by the infrastructure and strength of its global network, which ensures that customers receive the best prices for products, as well as having access to other services including risk management, the company claimed.

Commenting on the move, Flavio Ribeiro, branch manager, OW Bunker Brazil, said: "The strength of OW Bunker's global offering, its physical assets, state-of-the-art fleet of vessels, and deep understanding of the shipping industry, combined with a thorough knowledge of the local market is a highly attractive proposition for both domestic and international customers.

"They want fast turnaround on quotes, the best possible deal and assurance that they will receive quality products, at the right amount, and delivered when they want them. OW Bunker can meet these demands," he said. ■

Unitor ballast water treatment systems ordered in China

Wilhelmsen Technical Solutions (WTS) has received orders for five Unitor Ballast Water Treatment Systems (Unitor BWTS) from Chinese yards, including two to be installed on asphalt carriers being built at Nanjing East Start Shipbuilding.

The asphalt carriers building at Nanjing East Start Shipbuilding are for the Singapore based shipowner Stolt Bitumen Services, a new division of the Stolt Nielsen Group.

Each system has a capacity of 200 cu m per hour and the vessels will be delivered in 4Q11 and 1Q12.

With an increasing number of type approved ballast water treatment systems in the market, the competition for securing new contracts is tough. “We have developed a system that benefits both the installers and operators”, claimed Petter Traaholt, WTS president.

“A small footprint and flexible installation options are valued by the yards. Feedback from owners suggest that treatment on ballasting only, low power consumption and easy operation are seen as key factors when selecting

a ballast water treatment system”, he continued.

“This is the first ballast water treatment system we have ordered. With little service experience with any system, we wanted to choose a supplier that has excellent worldwide support and the backup of a large organisation”, said a representative at Stolt Bitumen Services.

Unitor’s BWTS is applicable to all vessel types and sizes. To date, WTS has won contracts to install the system on a range of vessel types, including the asphalt carriers and an LNGC.

The technology is provided by the South African company Resource Ballast Technology (RBT). However, the system is produced, marketed and sold globally by WTS.

Meanwhile, sister company Wilhelmsen Ships Service (WSS) is preparing to move to Phase 2 of its recently launched Ships Spares Logistics (SSL) – ‘First Mile to Last Mile’ offer.

This is a service which provides a single point of contact for managing the delivery of spare parts from manufacturer to vessel, with total visibility on data and associated prices.

Vidar Hole, WSS’ business director maritime logistics services said: “Over 60 customers and more than 200 vessels have

now started to use this offer. We are pleased to see that the number of customers signing up has increased significantly in the past months.”

The next phase will include upgrades in the SSL application to allow for increased efficiencies in quoting and invoicing processes, which will give the customer quicker response times.

SSL combines the establishment of a central freight forwarding centre with an online service which provides its contract customers with the ability to see the location and status of their orders as well as offering a number of reporting features.

“There is a growing market for these maritime related logistics services,” said Hole. “WSS has a great network of offices, local knowledge and capabilities. Until the launch of SSL, our logistics activities had been rather fragmented geographically.

“Our key challenge is to connect our international logistics capabilities and develop competitive global offerings. This will require resources, time and alignment on different management levels, but I am very confident that we will succeed in increasing our market share in the segments we have selected,” he said. ■

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Maran Tankers opts for Eniram

Finnish software house Eniram has installed its Dynamic Trimming Assistant (DTA) software on board Maran Tankers' VLCC Maran Canopus.

Eniram's DTA provides the bridge with a visual display of the optimum trim of the vessel, which is calculated in real-time taking into account a large number of affecting variables.

As the affecting factors change - for example, weather, sea state, draft, speed and bunker levels - so does the vessels optimum trim. Using this dynamic optimum trim, the bridge team can make adjustments to the vessel in order to stay within the optimum trim.

The benefits of staying in the optimum trim are reduced bunker consumption for a given speed.

Maran Canopus currently operates on a worldwide spot basis; long voyage legs typically involve loading in the Persian Gulf, discharging in the Gulf of Mexico, ballasting to West Africa and then loading for discharge in India followed by ballasting back to the Persian Gulf.

Philip Padfield, Eniram CEO, said: "We are delighted to be working with such a major player in the world tanker market. We have

achieved very encouraging results in the VLCC sector on vessels with similar voyage and operational characteristics as the *Maran Canopus* and her sisterships.

"We are particularly excited to help Maran Tankers actualise bunker savings and a reduction in their carbon emissions, as part of their ongoing energy efficiency initiatives," he said.

Miltiades Sfantsikopoulos, superintendent engineer at Maran Tankers, said: "With the installation of DTA on board *Maran Canopus* we hope to achieve a fuel saving of between 2% and 4%. This could translate into \$200,000-\$400,000 savings in fuel per calendar year, as well as significant reduction in air emissions."

Maran Tankers has a strong history as an early adopter of energy efficiency initiatives and allocates significant resources in the continual improvement of the environmental performance of vessel operations.

In-house company programmes comprise vessel performance monitoring, training of seafarers and office personnel on best operational, environmental and energy management practices, employment of novel technologies and solutions on the new vessels

for improvement of energy efficiency and reduction of environmental impact.

Sfantsikopoulos added: "We hope that the Eniram system will prove to be a useful tool for further voyage performance optimisation."

From the positive results already seen from the VLCC sector, Eniram said that it was confident that Maran Tankers would make substantial fuel savings and contribute towards its ongoing vessel optimisation programme through the use of the DTA.

Eniram's core business is providing the maritime industry with decision support systems to reduce fuel consumption and emissions, as well as supporting the decision making process with information analytics.

The company's solutions range from single on board applications to comprehensive fleet analysis. Eniram claimed that it had accumulated extensive knowledge from the shipbuilding industry, seafarers and software specialists.

Based on Eniram's vessel management platform, the company offers solutions in the areas of performance improvement, environmental savings and information intelligence. ■

The South of England Protection and Indemnity Association (Bermuda) Limited
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Is slow steaming the answer?

Since the beginning of the year, worldwide bunker prices have risen 22% in step with increasing crude prices.

The higher bunker prices continue to eat up an ever larger portion of the voyage revenues, reports McQuilling Services in its weekly report.

In the backdrop of lower freight rates and high bunker prices, the industry is revisiting the topic of slow steaming to reduce bunker costs and consumption.

At the current market rates (Mid-March), fuel costs make up over 55% of the freight revenue for a VLCC operating on the benchmark MEG Gulf/Japan TD3 route.

The practice of slow steaming worked very well for the container industry which suffered dramatic operating losses during 2009. Liner companies were able to reduce speed, increase the number of vessels on a particular trade route and maintain their weekly sailing schedules while reducing costs and returning to profitability quickly.

Shipowners who participate in both the tanker and container markets are now applying similar tactics to their tanker fleets.

The speed at which the tanker fleet operates depends on a number of factors in the market including: bunker costs, freight rates, and employment opportunities, McQuilling said.

The optimum speed curve implies that vessels should operate at different speeds depending on market conditions.

It is reported that some shipowners are ultra-slow steaming. This practice effectively reduces tonnage supply by making vessels less frequently available to meet cargo lifting requirements.

Further reports indicate that owners may be executing hot layups when the lack of suitable

employment justifies this practice. In a hot layup, a vessel will steam then shut down for a few days mid-voyage then continue sailing. This reduces bunker consumption.

Charterers are reluctant to slow down their voyages on the laden leg. Doing so would require more vessels to deliver the same amount of barrels per day to their requirements.

Freight costs for an additional slow steaming voyage would be higher than a single voyage operated at 14.5 knots. Only the shipowners have the incentive to operate as slowly as possible, McQuilling said.

Engine problems

On ballast voyages ultra-slow steaming can be as low as 8-9 knots. At this speed, a normal diesel engine would experience technical problems, such as sludge buildup and failure. To counteract this, some shipowners are making engine modifications to allow for ultra-slow steaming without causing engine damages.

McQuilling estimated that a VLCC on a laden voyage at 14.5 knots consumes about 100 tonnes of bunker fuel per day. The ballast consumption is lower at 80 tonnes per day while operating at the same speed.

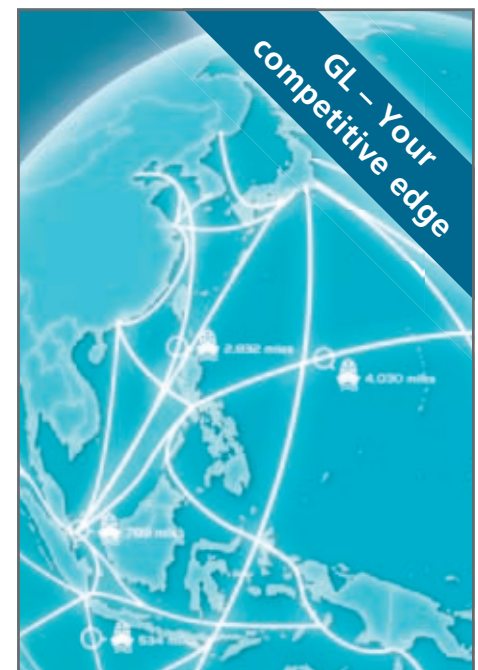
Table 1 shows the effect of a uniform speed reduction across vessel sectors. A change of just 1 knot has a marked effect on total fleet supply. This effect is most pronounced in the VLCC sector where a decline in speed of 1 knot would reduce the supply of vessels by 3%.

The long term market effect of a concerted industry slowdown is an interesting dichotomy for vessel supply. A fleet slowdown would eventually result in freight rates going up, as

the supply of tonnage becomes more constrained.

Higher rates will encourage owners to resume higher speeds to maximise their revenue potential.

A voyage completed in a fewer number of days would increase the TCE earnings.



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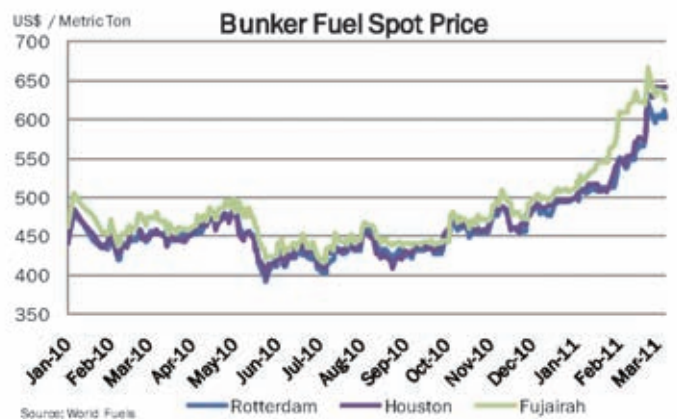
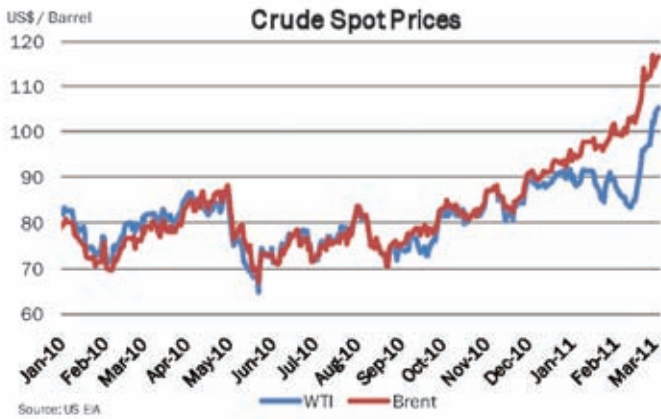
www.gl-group.com/more-miles



US\$/Day	VLCC	SUEZ	AFRA	PANA	MR
Number of vessels	11-24	6-13	8-18	2-5	7-13
Fleet size change	3%	2%	2%	1%	1%

Source: McQuilling Services.

Table 1 – Effective number of vessels added/deleted from supply for each 1 knot of speed change.



Overall, successful shipowners are motivated to generate respectable freight revenues and to reduce operating costs. Currently, slow steaming is just one technique owners are employing to reduce bunker costs.

Innovative owners and industry participants continue to seek creative ways to reduce costs and they must do so to be competitive.

Commodities trading house Cargill recently announced it will utilise sails on some of its smaller long term timechartered drybulk vessels. It has partnered with SkySails to deploy a 320 sq m sail on its bulkers in the 25,000-30,000 dwt range.

It is estimated that bunker consumption can be reduced by up to 35% in ideal sailing

conditions. Deployment of the sails is expected to be completed by the first quarter of 2012.

With big players beginning to make announcement about their enterprise level efforts to reduce costs, we can expect the innovative trends in the shipping industry to continue, McQuilling concluded.

TO

MRs firm in the Atlantic Basin

After fairly disappointing results during the first two months of this year with daily earnings of around \$4,000-\$9,000 per day, the returns for 37,000 tonne clean cargoes trading UK/Continent - US Atlantic Coast improved in March.

The TCE assessments were \$18,000 per day by the middle of that month, said Gibson Research in its weekly report.

A much firmer market has also been seen in other regions of the Atlantic Basin. For example, in the Caribbean, daily returns for 38,000 tonne clean shipments to New York firmed to \$21,000 per day that week, the highest level since September 2008.

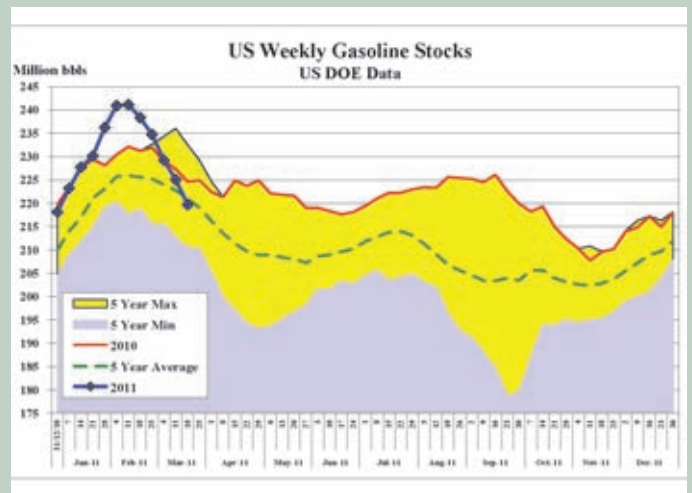
The reasons for the pick up in rates were both localised and general, ranging from firm/steady demand to ship products, arbitrage opportunities, weather related delays and replacements to tighter tonnage availability amid simultaneous improvements across different trading zones.

In addition, there were factors that might provide support to the benchmark transatlantic gasoline market in the immediate future. US gasoline stocks plummeted by 21.4 mill barrels over the five week period ending 18th March - from well above the five year maximum for this time of year to just below the five year average.

The last time gasoline inventories dropped below this five year seasonal average was in May 2008. Thus, these relatively low levels of gasoline stocks could potentially prompt stronger inflows of gasoline/blending components into the US, providing additional employment for transatlantic MRs, Gibson said.

Product exports

At the same time, product exports simply could not be ignored. The preliminary data for distillate trade out of the US showed that total exports, primarily to the Caribbean/Latin America and Europe have



Source: Gibson Research.

averaged 0.72 mill barrels per day in the three weeks ending 18th March, up by 0.27 mill barrels per day from an average of 0.45 mill barrels per day in March 2010.

This increase in distillate exports largely offset the weakness in gasoline imports in recent years.

Gasoline imports have averaged 0.73 mill barrels per day over a four week period, marginally up by 30,000 barrels per day year-on-year, but still some 0.37 mill barrels per day below the level this time two years ago.

The rapid growth in distillate exports and the slow recovery in gasoline imports also meant that the distillate export market in volume was similar in size to the gasoline import market. This, in return, made it much easier for owners to enhance their net returns through back haul trades/triangulation, Gibson concluded.

Stipulated charterparty speeds impact on CO2 emissions

It is almost received wisdom at the IMO that shipowners are slow to adopt measures which would increase fuel efficiency, even when such measures are economic, that is, should have been adopted with no regulation at all*.

Here is how DNV puts it. “The results of this study indicate the lack of responsiveness to economics as a driving factor for change”.^[1] In general this is a misconception. Owners are acutely aware of fuel costs and term charterers know how to distinguish fuel efficient ships from ships that are not.^[2]

Recently, tanker owners have instituted super slow-steaming down to 8.5 knots on ships that were not supposed to be able to do this.^[3] This kind of slow-steaming was not even on DNV’s list of measures that owners are alleged to be not adopting.

Overall owners are responding to the massive post-2005 increase in bunker prices just about as fast as they can. However, there

is some truth in the consensus position. Markets do not always function perfectly. And there is at least one market imperfection that is currently having a substantial impact on owners’ attempts to reduce CO2 emissions.

That imperfection is tanker charterparty (C/P) speeds.

When a tanker is fixed in the spot market, the contract, or C/P usually specifies a speed that the ship is required to maintain on the loaded leg. For a variety of reasons, charterers tend to be very slow to change C/P speeds.

For example, back in the late 1990’s, Vela, the chartering arm of Aramco, took 14 knots as their C/P speed. At the time, this was less than the economic speed, which a competitive market would have come with for ships that

could do more than 14 knots.

Vela accepted the additional transportation costs of forcing ships to go less than the optimal for its stipulated speed because they knew that some ships could not do much more than 14 knots.

By forcing all ships to sail at the same speed it simplified their scheduling, which at the time was done manually. It is unlikely that Aramco headquarters even knew that Vela was subjecting Aramco to unnecessary costs.

In 2002, bunker prices started to rise and in 2005 to 2007 skyrocketed to unheard of levels. The economic speed in all but a boom market was pretty much as slow as you can go. Yet the Vela C/P speed remained at 14 knots.

Other major oil companies reduced their C/P speeds slightly but only to the range of 13 or 13.5 knots. In late 2008, bunker prices plummeted; but since then they have recovered to around \$600 per tonne.

Once again the economic speed is just about as slow as you can go, and now VLCC owners know how to slow steam down to 8 or 9 knots. Yet the C/P speeds remain in the 13, or 14 knot range, well above that which is optimal for the charterer even after accounting for cargo carrying cost.

The purpose of this paper is to estimate the impact of these uneconomic C/P speeds on VLCC CO2 emissions.

Table 1 shows how a VLCC owner would react to the spot rate given \$600 per tonne bunkers, accounting for cargo carrying costs, but with no C/P speed. For carrying costs, we assumed a cargo value of \$730 per tonne (about \$100 per barrel) and a cost of capital of

WS	DAYS	LD SPD	BL SPD	MARGIN	INVCST	CO2/TPD
25	65.82	8.50	9.50	481817	950559	1.0729
30	62.42	9.50	9.50	704825	856331	1.1108
35	60.97	10.00	9.50	964928	816284	1.1332
40	59.66	10.50	9.50	1223854	780052	1.1574
45	58.47	11.00	9.50	1480130	747113	1.1847
50	57.39	11.50	9.50	1732542	717038	1.2164
55	55.91	11.50	10.00	2000358	716907	1.2207
60	52.37	12.00	11.00	2177769	689089	1.2662
65	50.35	12.50	11.50	2387410	663610	1.3048
70	49.33	12.50	12.00	2650676	663474	1.3138
75	46.77	13.50	12.50	2792455	618291	1.3871
80	46.77	13.50	12.50	3093667	618291	1.3871
85	44.38	14.00	13.50	3244840	597892	1.4418
90	43.64	14.00	14.00	3500317	597747	1.4549
95	42.27	14.50	14.50	3687863	578894	1.5001
100	41.63	14.50	15.00	3937861	578736	1.5168

Table 1: VLCC speed up curve PG-East, BFO \$600/tonne, no C/P speed.

WS	DAYS	LD SPD	BL SPD	MARGIN	INVCST	C02/TPD
25	53.12	14.00	9.50	-63241	598888	1.4173
30	53.12	14.00	9.50	238325	598888	1.4173
35	53.12	14.00	9.50	539891	598888	1.4173
40	53.12	14.00	9.50	841457	598888	1.4173
45	53.12	14.00	9.50	1143022	598888	1.4173
50	53.12	14.00	9.50	1444588	598888	1.4173
55	53.12	14.00	9.50	1746154	598888	1.4173
60	50.31	14.00	10.50	1979773	598668	1.4066
65	47.99	14.00	11.50	2210371	598440	1.4057
70	46.98	14.00	12.00	2473637	598317	1.4096
75	46.04	14.00	12.50	2733826	598185	1.4170
80	46.04	14.00	12.50	3035038	598185	1.4170
85	44.38	14.00	13.50	3244840	597892	1.4418
90	43.64	14.00	14.00	3500317	597747	1.4549
95	42.95	14.00	14.50	3753587	597594	1.4702
100	42.31	14.00	15.00	4003585	597432	1.4883

Table 2: VLCC speed up curve PG-East, BFO \$600/tonne, 14k C/P speed.

5%. The VLCC we used is equipped with a full set of slow-steaming modifications. The ship was put on the RasTanura-Yokohama route, via the Malacca Straits both ways.

The second column is round trip days. The third and fourth columns show the optimal steaming curve that is, the speeds that maximise owner’s earnings net of carrying cost per day for each spot rate.^[4]

It turns out that these are the ship’s optimal speeds regardless of whether this is an owner in the spot market who is attempting to maximise his/her profits in the face of carrying costs, or a term charterer who is trying to minimise his/her transport costs, including cargo carrying cost.

The fifth column shows the owner’s voyage margin (exclusive of OPEX and CAPEX), and the sixth column the cargo carrying cost. The last column shows the tonnes of CO2 emitted per tonne per day of oil delivered. In other words, the fleet size is adjusted to deliver the same amount of oil.

Table 2 shows exactly the same calculations except we have forced the owner to go 14 knots loaded.

At \$600 per tonne bunker price and low spot rates, the market optimal loaded speed is in the 10 to 11 knot range even accounting for cargo carrying costs. The 14 knot C/P speed forces the owner to go 3 or 4 knots faster loaded than he would voluntarily, resulting in a big difference in CO2 emissions.

For example at Worldscale 45 (WS45), about the current rate, the difference is just under 20%. And it is precisely at the bottom of the market that we have the ships available to slow down and still move the same amount of oil.^[5]

Not economical

It is easy to see that, below WS80, the 14 knot C/P speed is not economic. For example, at WS45, if the owner were allowed to go the optimal loaded speed of 11 knots, his voyage margin would increase from \$1.143 mill to \$1.480 mill. But the loaded leg would increase by 5.4 days increasing in-transit cargo carrying costs from \$599,000 to \$747,000.

The owner could take \$148,000 of his extra margin and give it to the charterer to compensate for the increase in carrying cost, and still have \$189,000 left over. Of course, he has tied up his ship for an extra 5.4 days. At WS45, this costs him \$25,300 per day or \$137,000.

The bottom line is that there is \$52,000 available which the owner and charterer could somehow share by eliminating the C/P speed. Everybody wins. In a perfectly functioning market, this kind of ‘gravy’ simply isn’t available.

These computations also pretty much tell us why this sort of market imperfection persists. An amount of \$52,000 is not a lot of money in a charter for which the gross charter hire is about \$2.2 mill and the inventory carrying costs are of the order of \$700,000. The speed optimum is fairly flat so the loss to the owner/charterer of being off in speed is a small percentage of the overall deal.

Yet the difference in CO2 emissions can be quite substantial.

Name and shame

The obvious question is: what to do about this market imperfection?

In CTX’s opinion, this is one of the few cases where name-and-shame should work. The oil companies are very conscious of their environmental reputation, or at least the public’s perception of it.

They have nothing to lose from reducing C/P speeds to near-optimal.^[6] In fact, they will gain a few bucks.

IMO should set up an office to monitor C/P speeds, and publicise any oil company that persists in dictating uneconomic C/P speeds. This should be an easy one. TO

** This is an extract from a paper written by Jack Devanney of the Center for Tankship Excellence. The full paper can be found at <http://www.c4tx.org/ctx/pub/>*

Footnotes:

- 1] Det Norske Veritas, Pathways to Low Carbon Shipping, 2009-12-15.
- 2] Are owners and charterers really that stupid? CTX Technical Report, 2011.
- 3] Bockmann, M, VLCC next to turn to super-slowsteaming to cut costs, Lloyds List, 22 February 2011.
- 4] These voyage calculations were done by the MFIX voyage analysis program. MFIX optimises speed in half knot increments, so the speed up is a little jumpy. The slight drop in inventory carrying cost with increasing spot rate in Table 2 is due to a slight reduction in cargo deadweight due to the increased bunkers required.
- 5] Of course, if the C/P speed is reduced and the fleet on average slows down,

then spot rates will rise. At the end of the day, the loaded speed will not be the WS45 speed, but something slightly higher.

- 6] “Optimal” here refers to market optimal. The market prices the cost of CO2 emissions at zero. If CO2 emissions were more properly priced, then the optimal speeds would be still lower. The CTX has argued that by far the best way of integrating the social cost of CO2 pollution into the owner/charterer calculus is a tax on CO2 stack gas emissions. See Direct Taxation of Ship-based CO2 Emissions. About the worst thing we can do is to impose EEDI. See The Impact of EEDI on VLCC Design and CO2 Emissions.

Middle East – business as usual amid the turmoil



Trying to write an objective article about maritime activities in the Middle East is somewhat fraught with danger at present, due to political unrest in several countries.

In the long term, the furore could lead to would be investors quitting the area at a time when countries, such as the UAE, were coming out of their economic strife.

Dubai in particular could suffer, as although local Islamic finance is in place, much needed overseas finance could be hard to get. However, there is no shortage of maritime concerns, both local and overseas, willing to open up in the Emirate and elsewhere in the region, or ramp up facilities and/or personnel already in place.

Events in Bahrain are difficult to call at the time of writing, but a leading insurer told *TANKEROperator* recently that the area would probably be declared a War Risk zone, which means that an operator contemplating visiting the island state will have to pay a higher insurance premium.

Where that leaves ASRY is probably too early to tell - and what about Yemen? ASRY recently sent out a statement saying that it was

“business as usual” amid the uncertainty.

Sanctions against Iran appear to be biting as recently leading tanker company NITC lost its P&I cover with leading UK mutuals.

However, the company has tried to re-assure its charterers that it has alternative cover in place.

Once NITC’s massive newbuilding programme is complete, the company will probably climb to third place in *TANKEROperator*’s list of top 30 companies (see March issue Annual review, page V). Let us hope that sense prevails as NITC is a very well run company and claims not to be affected by the various sanctions in place against Iran, unlike its counterpart IRISL.

There is an Iranian election due later this year and the rest of the world will be hoping that stability returns to the region, as it is awash with much needed oil and gas.

An interesting statistic came out from a leading shipping analyst recently. He said that nine out of 10 fixtures of large crude oil

tankers from the MEG were destined for Asian refineries with only one out of the 10 going to western destinations.

Increased tanker movements

With the start up of the Indian refinery expansion schemes, especially Jamnagar, both crude and product shipments will increase still further to and from the area. The Middle East states also have plans to build new refineries, particularly in Saudi Arabia and Iraq, partly in a bid to enter the chemical/products export markets.

The region was always an important shiprepair centre dominated by the huge docks at ASRY, Bahrain and Drydocks World-Dubai. However, question marks hang over both operations, the former due to political unrest in that country and the latter due to a senior management upheaval that took place earlier this year.

Very soon both yards will experience severe competition from giant docking facilities

“One Norwegian manufacturing, service and support company, which has set up shop in Dubai, told *TANKEROperator* that the added value was “being closer to the market where the action is”.”

under construction at Ras Laffan, Qatar and Duqm, Oman. The huge Ras Laffan complex was opened late last year with the drydocking of a Shell-managed LNGC.

Large docks will probably be needed worldwide, as notwithstanding the influx of VLCCs, Suezmaxes, Aframaxs and LNGCs, there is a growing fleet of large containerships of over 300 m in length to service.

There is a move to shift large crude oil loading tankers to Fujairah. A pipeline is under construction from Abu Dhabi to Fujairah where single point mooring buoys will be installed offshore to load the crude ex pipeline.

Also at Fujairah, several storage tank concerns have set up shop and built product

tanker discharge and load jetties and others are looking to invest. According to Inchcape Shipping Services (ISS) Dubai office, this opens up “enormous opportunities” in the agency, crewing, spare parts and ship supply sectors, to name but a few.

Despite its financial crisis, Dubai is still regarded as the hub of the region in terms of shiprepair and the service and support sectors that this activity supports. As the repair facilities in Qatar and Oman grow, many service and engineering concerns will look to open offices and/or warehouses in the shipyards, once a license has been granted.

However, most will keep their Middle East headquarters in Dubai, either in and around the city, or out at the new industrial parks

springing up near Jebel Ali, which is itself a growing port, catering for most types of cargoes, including blending facilities for oil products and the area’s first floating regasification plant in the shape of the converted LNGC *Golar Freeze*.


According to a leading third party shipmanagement concern, skilled workers are usually easier to come by than in Europe and cheaper to employ. Once employed, they usually remain with one company for several years thus giving continuity of employment.

One Norwegian manufacturing, service and support company, which has set up shop in Dubai, told *TANKEROperator* that the added value was “being closer to the market where the action is”. The company also confirmed that it was easier to employ skilled engineers in the region. “We can do more with local resources”, the company said.

The company (Kongsberg Marine Services) was looking to grow in the area and would consider moving to the Dubai Maritime City in a few years. Other companies also confirmed their interest in relocating to the man made peninsular, as soon as the facilities were in place, albeit that the original time frame for its completion had slipped a bit.

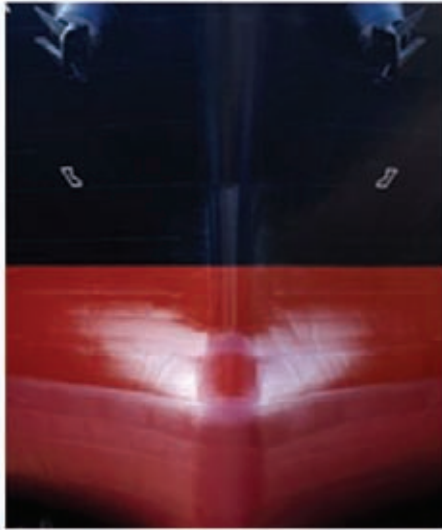
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Specialist service providers abound

In Dubai and the surrounding area, there are many companies based serving local owners and managers, the international passing trade and the giant repair facilities.

TANKEROperator has attempted to produce a snapshot of a few of them, highlighting their activities in the region.

One example is leading independent repair and engineering specialist **Goltens**, which has been in the area for many years. Last year, this company signed a contract with Jadaf Dubai, part of the Drydocks World Group, to set up a shipbuilding and repair facility within the Dubai Maritime City (DMC) complex.

This is the second long term ground lease agreement agreed between the two concerns. Under the latest agreement, two plots have been taken by Goltens totaling some 23,000

sq m for a period of 25 years. Around 40% of the area will contain warehousing.

Speaking at the end of January, president Paul Friedberg said that the company could be ready to start repair work in about 12 months time at the new site. DMC already has two shiplifts in place – one of 6,000 tonnes and the other of 3,000 tonnes lifting capacity - and many afloat berths for repair work.

The original facilities at Al Jadaf in Dubai Creek will continue to operate for the foreseeable future, Friedberg explained. He estimated that the move to DMC, including

the building of the infrastructure, would cost around \$15 mill.

The new facility will be in an area called the Industrial Precinct, which is an area dedicated to shiprepair, manufacturing, as well as workshop units to serve the marine industry.

He saw 2011 as a year of consolidation and one of going out into the marketplace to gain a larger share. He said that today, Goltens concentrates on three core areas – in-situ repairs, diesel engine repair and maintenance and the latest venture - green technologies.



DMC is already fitted with two shiplifts.

“ Goltens success lies in the fact that the company can offer an independent alternative to the OEMs service organisations. ”

During the past five to six years, Goltens has established seven new global repair centres, lifting its annual shiprepair revenue from \$90 mill in 2005 to around \$200 mill in 2010. Last year, the company opened a repair centre in the Philippines and worldwide worked on 10,000 vessels of all types.

Goltens success lies in the fact that the company can offer an independent alternative to the OEMs service organisations. One of its core businesses is in-situ repairs and in the Middle East. Most of the in-situ repairs take place in Goltens dedicated warehouses.

With its worldwide reach, Friedberg said that the company completed some 30,000 projects annually and had 10% of the market share in specialist services, employing some 1,400 specialists. However, not stopping there, Friedberg said that he was keen to open more repair centres to join the 22 already in operation. Locations being looked at include Panama, Chile, South Africa, Algeciras, Istanbul and Australia.

These would pave the way for more in-situ repairs, as for example, China cannot undertake afloat repairs. One development in Goltens favour was that owners were prolonging drydockings and Friedberg said that 50% of 2-stroke diesel engines were now over 10 years of age. The company also handles 4-stroke and high speed diesel engine repairs.

Goltens latest venture concerns co-ordinated clean technology upgrades. To cater for this new initiative, a new company was established in Groningen, Netherlands – Goltens Green Technology – which opened its doors on 1st January this year.

One area being covered is the installation, retrofitting and engineering of ballast water treatment systems, independent of an OEM. Friedberg saw the potential to open up other centres to offer this service in Shanghai and Singapore. He said that suppliers were partial, as they will say that their system is the best the market has to offer.

Friedberg said that he saw the ballast water treatment business being worth as much as \$10 mill in five years time.

DMC move

There are many small shipbuilding and repair yards in the Gulf region with more planned.

Another company eyeing a move to DMC is **Grandweld**. This company has signed a long term lease agreement with Drydocks World Dubai for a shipbuilding and repair facility at DMC.

This could happen by the end of this year, or early in 2012, general manager Jamal Abki explained. He said that two plots totaling 27,055 sq m had been leased for 25 years.

He said that the company would rent shiprepair shops but build its own newbuilding facilities. It would also lease slots on the two shiplifts as necessary. Similar to other small vessel repairers and builders in Dubai, Grandweld would keep a presence in Al Jadaf, thus Abki saw the move as an expansion, rather than a relocation.

Today the company builds tugs, workboats, naval craft, etc. The company builds hybrid tugs with either diesel mechanical, or diesel electric propulsion systems. The activity is split roughly 30% repairs and 70% newbuilds, he explained.

Established in 1984, as part of the GMMOS Group (a portfolio company of Abraaj Capital



Grandweld's general manager Jamal Abki.

and Waha Capital), Grandweld has developed into a leading shipbuilder of offshore vessels and high speed aluminium vessels in the range of 20 m to 70 m.

Abki told *TANKEROperator* he was also keen to enter the bunker tanker market with a Vik Sandvik design, which the company is marketing locally.

Despite the political tension in the region, there are several projects that if finalised could have an affect on the tanker industry. For example, there are plans to rebuild ports and jetties in Kuwait, Iraq, Qatar, Abu Dhabi, Fujairah and elsewhere, plus new and upgraded refinery project plans, especially in Kuwait and Iraq.

These could lead to greater exports of oil and petrochemicals from the region. **Inchcape Shipping Services (ISS)** said that there are enormous opportunities for its launch service out of Fujairah, once the single point mooring buoys come on stream to load Abu Dhabi crude.

The pipeline is scheduled to be complete by the third quarter of this year and it will have a capacity of transporting 2.2 mill barrels of oil per day from Abu Dhabi to Fujairah. At present ISS has up to six supply vessels at Fujairah offering services to passing shipping and the offshore sector. There are also plans to expand at Ras Al Khaimah.

In Iraq, the country plans to export 12 mill barrels per day by 2017 from the current 2.7 mill bpd. The Basra oil terminal will have three offshore loading jetties due to open later this year, or next, while Kuwait has its Bubiyan refinery scheme underway.

OEM operations

Many well known OEMs have significant operations in the area. One example is Kongsberg, which has formed **Kongsberg Maritime Middle East**. This subsidiary is based for the time being out at Dubai Investment Park, near Jebel Ali. However, there is talk of moving into DMC once the facilities there are in place. This move could still be two or three years away, *TANKEROperator* was told.

Kongsberg's facility in the UAE looks after the GCC region and the complex comes with a training classroom. The company specialises in integrated control systems, especially for LNGCs in the region.

In addition, dynamic positioning (DP) systems, navigation systems and engine control automation are an integral part of Kongsberg's offering in the area. The company handles warranty issues including systems support and services, spares, logistics,



Wärtsilä's ample repair facility.



Wärtsilä UAE managing director Ad Bertens.

modifications and upgrades, including mid-life upgrades, retrofits, handling maintenance agreements and not least – training.

Tank gauging and tank radar equipment is serviced on LNGCs and tankers and Kongsberg training simulators are also installed at Abu Dhabi. ECDIS installation support is also offered. Training can be offered on board ship on new or upgraded systems. A new training regime is to start this month on DP systems, both on a technical and operational footing.

Kongsberg Middle East looks after the regas LNGC *Golar Freeze*, which is moored at Jebel Ali. Among the services rendered are on the gas cargo control systems, safety systems and the regasification equipment support. For example, the LNGRV is fitted with Emerson processing equipment.

General manager Halvard Sagdahl explained that vessel operators were increasingly looking for integrated systems and Dubai and the surrounding states was a growing support and service hub, as well as being a major hub for shiprepair.

He said that Kongsberg had also signed a maintenance agreement with Shell, which had put in place a five year plan to dock its managed Q-Flex and Q-Max LNGCs at Ras Laffan.

This agreement includes LNG cargo and deck automation, various control processes and navigational needs. Sagdahl said that the company was in the process of getting registered in the new shipyard and once that is in place, Kongsberg would open an office on site.

He explained that by having a service agreement in place with the company, vessel operators could predict their costs. The agreement could include spare parts, training and other services. Kongsberg would give a

commitment on the response time to a request from an operator.

In general, services in the region were cheaper than found in Europe and vessels calling at Fujairah for bunkers could also avail themselves of other services simultaneously.

The Norwegian-based company has a third share in Unique Systems based in Sharjah, which continues to act as a sales agent for Kongsberg.

Kongsberg employs 28 persons at its Dubai facility, but is looking to grow to 40 in about two years, Sagdahl said.

Finnish presence

Another OEM with a large presence in the area is Wärtsilä. The company has been involved in the Middle East since 1992 when it first set up shop in Abu Dhabi.

In 2008-2009, the company moved into a purpose-built building and workshop in Dubai Investment Park. Both the services and ships' power divisions were merged into the one building. At the same time, a new branch office was opened in the Jebel Ali freezone.

From Dubai, Wärtsilä's team controls 14 countries. In-situ repairs are undertaken in a 15 m high 10,000 sq m workshop fitted with six overhead cranes of a maximum of 30 tonnes lifting capacity. A couple of the cranes can be twinned to give a lifting capacity of 60 tonnes if needed. Complete engines can be handled by being shipped in by heavy lift vessel and then taken to the warehouse by road.

The workshop is the company's second largest facility after Singapore.

Wärtsilä has many spare parts and service agreements in place and *TANKEROperator* was told that more life cycle agreements were still to come. Several are handled from Dubai.

Recently, Wärtsilä boosted its boiler

repair/servicing offering by recruiting John Aitken from a nearby rival concern. All makes of boiler can be serviced and/or repaired. Wärtsilä UAE managing director and vice president –services Ad Bertens explained that the company saw an expanding market in LNGCs in the region.

Engineers are being retrained in boiler repair work - for example, in the art of welding.

Wärtsilä is currently undertaking main engine low sulphur modifications on 12 of BP Shipping's tankers – eight VLCCs and four Aframax. The modifications are performed while the vessels are on voyage and the equipment is packed into a 20 ft container and shipped to the vessel. The whole operation takes around two weeks per vessel.

Another major job was the installation of electronic monitoring equipment to measure the luboil feed on cylinder liners on board 14 NITC VLCCs. They are each fitted with RTA84 type main engines.

In the Dubai warehouse, Wärtsilä stores spares for large tanker RTA84 engines, such as piston crowns. Two-stroke engine liner honings are also undertaken at the site, as is the reconditioning of pistons.

Bertens said that branch offices have been opened in strategic locations, such as ASRY to service engines and other equipment at the repair complex, which despite the political upheaval in the state, claims to be operating as normal. Another will be established at the giant repair complex under construction at Duqm in Oman.

As for the huge Dubai repair complex, this yard insists on undertaking OEM work themselves, which has caused problems with the manufacturers' service and repair departments and tanker owners looking to put their own repair personnel on board.

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Satcoms concern builds up presence

Since its founding in 1997, the company has built up its coverage to around two thirds of world using three satellites. It is one of the leaders in handheld voice solutions with nearly 70% market share in its 140-country coverage area spanning Europe, Africa, the Middle East, Asia/Pacific, and Australia.

In recent years, Thuraya has developed voice, data, and video solutions for the maritime sector among other industries.

The company launched its third satellite in January 2008, which has brought the Asia/Pacific region under its footprint thus extending its coverage.

At the time of *TANKEROperator's* visit, Thuraya was planning to launch the Comtech maritime broadband solution. Earlier this year, this terminal, which supports voice and data, was under test.

The company also offers an SOS service for its subscribers who find themselves in any emergency situation. Thuraya said that it had different mobile products and services on a robust satellite network that can support the seamless emergency and distress communications within its coverage and thus has applied for GMDSS. Approval was expected this year, the company said.

Thuraya claimed that all major marine

One of the fastest growing telecommunications providers is Dubai-based Thuraya.

applications are compatible with its products, including crew calling, crew mail, GSM backhaul, video conferencing, tracking, weather updates, while GMDSS, LRIT and SOLAS were under approval with the process due to be completed this year.

Recent tie ups include a Memorandum of Understanding with UAE's National Transport Authority (NTA) whereby Thuraya and NTA will explore and define areas of potential co-operation for the deployment of Thuraya services and solutions on board UAE flagships.

In addition, on an international level, Thuraya and NTA will liaise with the IMO to gain accreditation of Thuraya's maritime services.

In another move last month, Thuraya signed a distribution agreement with European telecommunications specialists, Tetra Communications.

Agreements

Late last year, Thuraya signed an agreement with Connect Telecom, an international mobile and satellite telecom distributor, which

has procured a large quantity of Thuraya's handhelds, including both the satellite phone 'SG-2520' and the tough satellite phone 'XT'.

With its established distribution outlets in UAE, Middle East and Hong Kong, Connect Telecom is growing its role and reputation as a main provider of mobile satellite services and products in the region.

Thuraya's XT is claimed to be the only satellite handheld that is IP54/IK03 certified making it dust, splash water and shock proof. It has the fastest data service, Waypoint navigation and a stable omni-directional antenna enable walk and talk communications.

The GPS and data services available on both phones add to the user-friendliness of the handhelds.

Thuraya's SG-2520 handheld is a dual mode GSM/satellite handheld that was the first to provide Bluetooth capabilities.

Thuraya has also expanded its partnership with Etisalat, the Middle East region's largest telecom service provider, appointing it as distributors of IP and marine in the UAE. Etisalat is now marketing and distributing Thuraya's satellite data and maritime services to vertical markets throughout the country.

Thuraya IP is claimed to be the world's smallest satellite broadband solution that was the first to reach streaming speeds of 384 Kbps. With Standard IP speeds of up to 444 Kbps, it is based on a user-friendly plug and play system, which means users do not need to install additional software.

Thuraya Marine is a multi-communication device designed specifically for the maritime sector, especially small to medium-sized vessels.

This solution offers voice, data, SMS and fax services on board vessels, as well as emergency distress calling. The solution is claimed to be easy-to-install with an omni-directional antenna that is operable regardless of the vessels movements.

Thuraya has also launched the new Seagull 5000i solution in partnership with Singapore-based Addvalue Communications. This specialised marine terminal is designed for small vessels and provides voice, data, SMS and fax services that are based exclusively over Thuraya's satellite network.



Thuraya has also unveiled a Seagull comms system primarily for the smaller vessel market.

Major tanker player caught up in politics

By 2013, leading tanker concern NITC will have 50 VLCCs on its books, plus nine Suezmaxes, five Aframaxs, three so called Caspimaxes, five chemical/product tankers and two LPG carriers.

The company received a blow in February when four members of the International Group of P&I Clubs – Steamship Mutual, West of England, North of England and the UK Club – withdrew cover. However, the company said that it had managed to provide cover up to the required \$1 bill of pollution cover by using a mixture of fixed-premium insurers and other insurance concerns based outside the EU having adequate and suitable re-insurance provisions.

Speaking in February, NITC's chairman and managing director, Mohammad Souri, said: "NITC has found itself caught up in a situation of tightening sanctions as a totally innocent party, along with some 100 other Iranian shipping companies. We hope for an early resolution of this matter and speedy renewal of cover from International Group members.

"In the meantime, the company has been obliged to ensure alternative P&I arrangements are in place for all ships trading in its international fleet, up to the required level of \$1bn of pollution cover for each incident," he said.

Souri also stressed that with cover in place, the company will be able to continue its operations, trading as normal for international oil majors.

"The company is 100% privately owned, respects all international conventions and has never been engaged in any activity prohibited by the US, UN or EU," Souri explained.

Before the P&I clubs' withdrawals, NITC had not been affected by any economic sanctions on Iran. It continued to charter out vessels to the oil majors, having been vetted annually by companies such as BP, Shell, Repsol, Total, Statoil, ENI, ERG, Idemitsu and KPC.

Sharjah-based area manager Capt R Ghareh told *TANKERoperator* during a visit to NITC's offices in January that the company is owned by five million retired Iranian private citizens through their pension schemes. The

vessels are operated under the Cypriot and Maltese flags and have not experienced any problems in the past with sanctions, Capt Ghareh claimed.

NITC manages five VLCCs from Sharjah and uses a Bank Saderat bank branch located in the Emirate for funds. He denied that NITC had used vessels for storage saying that it was not a trading concern, nor does it lift petrochemicals into Iran. Around 80% of the crude oil transported in NITC's tankers emanates from outside Iran with 51% going to European destinations, Capt Ghareh explained.

A 'green' company

The company has always prided itself in the way that it operates its vessels, both commercially and technically. Some 28 tankers have been awarded Bureau Green Award certificates and the company is committed to continuous improvement being at TMSA Level 3, Capt Ghareh said. The newer vessels are to be fitted with an OceanSaver ballast water treatment plant and they have CAP 1 notation from DNV.

It is currently switching to a condition-based monitoring system. In addition, NITC has signed a contract with MHI to modify the vessels' boilers in line with the EU directive at a cost of \$500,000 per vessel. This is being

undertaken in three phases with Harris Pye and MetroMac being sub-contracted to carry out the work. At the end of January, 22 vessels had been modified and certificated by MHI and class.

NITC has started to compute a CO2 index on part of its VLCC fleet. The average CO2 index of the company's 14-year old VLCCs as computed by the NavyTech technology was 2.957 at 15 knots, the company claimed. In addition, the company has introduced a voluntary scheme aimed at reducing vessels' energy consumption by up to 28% by a combination of measures including –

- Slow steaming – 10%.
- Higher spec hull coatings – 5%.
- Modified propeller design – 3%.
- Propeller vortex loss recovery – 3%.
- Speed optimisation – 5%.
- Main engine fine tuning – 2%.

NITC does not have an agreement in place for fleet drydockings, but would rather negotiate a docking near where the vessel is trading. He said that he had been approached by Ras Laffan and Oman to use their new facilities and that he would send a team of experts to evaluate the shiprepairers, before making a decision as to whether to add them to the list. NITC does prefer the Singapore yards, due to their expertise in machinery repairs but sometimes uses Lisnave, especially for the

“

NITC has found itself caught up in a situation of tightening sanctions as a totally innocent party, along with some 100 other Iranian shipping companies. We hope for an early resolution of this matter ...

”

Mohammad Souri, chairman and managing director, NITC

Suezmaxes and Aframaxes. The company has used Dubai, but experienced a failed antifouling coating.

As part of its ongoing training regime, each VLCC can carry up to nine cadets, plus an instructor. The cadets are Iranian and the company also has shore training academy – NITC Maritime Training Centre - in the Caspian Sea, complete with simulators. Since it opened its doors in 1983, the academy has trained more than 20,000 seafarers for NITC and third parties in the Caspian Sea region, including Shell, Total, Petronas and Statoil. Some 100 cadets are taken in each year. In 2010, 127 cadets were recruited – 12 electrical, 85 engineering and 30 deck.

The academy underwent a major expansion programme in the mid 2000s, which included the construction of new class room complexes and campus accommodation totaling 16,000 sq m of interior space – an investment of more than \$6 mill. Retraining is also undertaken and the company claimed to be one of the first to embark on ECDIS training in 2000.

In addition, in 2008 NITC established the

NITC Marine College at the Applied Science University. The college conducts courses on the level of Bachelor of Science (BSc) in the deck and engineering sectors. An initial 18 students were accepted starting in 2009 and another 40 were accepted to start in the second quarter of 2010.

By the end of January, NITC vessels had been attacked 16 times by pirates in the Gulf of Aden/Indian Ocean areas. Technical manager Anwar Lodhi said the vessels should be allowed to carry armed guards, but that was against flag state rules. He said that some of the vessels did carry unarmed guards. NITC vessels use wire fencing, night vision cameras, water machines along the sides and the speed was maintained at 14 knots when transiting the areas.

In January of this year, NITC took delivery of the first of the 22 newbuildings, the 317,000 dwt *Sifa*. It is being operated by NITC under a bareboat charter from Oman Shipping.

Built by South Korea's Hyundai Heavy Industries, *Sifa* is believed to be the first

VLCC newbuilding to have a ballast water treatment system installed - five years ahead of the 2016 deadline when this equipment becomes mandatory.

Other green features include a vessel performance system supplied by Kongsberg, designed to reduce fuel consumption – and therefore emissions – by up to 5%. The system allows continuous monitoring and control of NOx, SOx and CO2 emissions from both the main and auxiliary engines.

Safety and security measures include installation of 16 CCTV cameras – on deck (seven), in the engine room (seven) and in the pump room (two). These will allow better operational control by the crew and enhance security, especially in the event of pirate attack. Input data for all 16 cameras can be recorded for up to 15 days.

All of the 22 newbuilding VLCCs to be operational by 2013 will include state-of-the-art equipment and systems in excess of statutory requirements and they will also apply for the Bureau Green Award certification.

TO



The VLCC *Sifa* is the first of NITC's 22 newbuildings. She is on long term bareboat charter from Oman Shipping and is fitted with an OceanSaver ballast water treatment system.

GAC expands STS venture

GAC Transfer Services (GTS) has been operating since 1979. With oil major approval, the company's mooring masters have experience in both static and underway berthing with all sizes of vessels.

The Quality, Safety and Environmental Management System certified by DNV consists of: ISO 9001:2008 - 14001:2004 & QHSAS 18001:2007.

GTS' operations manager Captain Jagdeep Singh Sodhi told *TANKEROperator* that he thought that there were many more locations worldwide that could be used for STS transfers.

Operations are performed both in port and off port limits (OPL). In port it is normal practice to use tugs and pilots, while OPL transfers are normally conducted while the vessel is underway, which is more cost effective.

GTS has found that the various flag state rules on STS tend to follow the OCIMF guidelines. However, the local port authority regulations are weighted to enable the port to make money from the service when conducted inside port limits.

Thus far, GTS has not experienced any problems with the new 48-hour notice rule of an intended STS transfer. There are no hidden costs. However Capt Singh Sodhi warned that traders/owners and charterers should look for the commencement and end of free time in the quote.

As for the question of how many mooring masters should be used in an STS operation, Capt Singh Sodhi said that by providing a second mooring master, as has been suggested in some quarters, the cost of the operation would rise quite substantially.

However, he thought that in certain cases, such as multiple operations, it would be prudent to employ two mooring masters and on certain tankers that are dedicated to STS operations, there are two Chief Officers. In this instance, the owner normally wants the C/Os to have master licenses enabling them to relieve the master if required.

During the first half of this year, GTS will be evaluating the facilities, including the simulator, at the training centre in Cork. It is thought that the training centre will offer bridge team management courses and will be tailored to individual company needs.

Dubai-based GAC has another string to its bow - complete ship-to-ship transfer operations with mooring masters provided.

Capt Singh Sodhi stressed that as an STS service provider, it is important that the company's mooring masters attend training/refresher courses, depending on their level of experience.

"We think it would be a good idea if our clients were to have first hand experience in attending an operation. Then the difficulties would become more apparent for example, working with multi-national crews who feel connecting hoses is not their job," Capt Singh Sodhi said.

Fewer crew difficulties

He also thought that the reduction in the number of crew on board vessels, as owners try to save money while sticking to the safe manning requirement, makes the mooring/unmooring operations difficult sometimes due to the lack of personnel on board.

Also the new design of the shipboard single crane with a shortage of fairleads and no winches serving the manifold area, means that getting wires and ropes onto the bollards is very difficult, thus increasing the time taken for mooring/unmooring operations.

Other factors that need to be taken into consideration include new regulations in place covering the transfer of personnel from one ship to another when alongside each other. The shortage of crew to keep a proper bridge and deck watch during an operation is also a problem, as is the increase in check lists which tend to repeat each other.

Capt Singh Sodhi said that a client can be very critical for operational delays, but would think nothing if a cargo survey took six to eight hours to complete, due to shortages etc. STS operations are still very much hands on and should not be conducted under any commercial pressure to berth at night, in adverse weather, etc.

The decisions should be left to those on site

that have the experience of local conditions there and now, which is the mooring master, and both the tanker masters involved in the operation, as the three should work as one, Capt Singh Sodhi stressed.

GTS recently entered into an agreement with Rotterdam-based MariFlex to launch GAC Transfer Services – Powered by MariFlex (GTSM). This gave the STS operation provider a wider range of services and choice of STS locations across Europe, Asia, the Persian Gulf and Indian Ocean.

The alliance combines GAC's global reach with MariFlex's expertise in a comprehensive range of complementary maritime services, bringing a total of 60 years of experience in STS transfers of dry and liquid cargoes, such as crude oil, petroleum products and liquefied gas.

STS transfer operations are now being offered from more than 10 bases, including Rotterdam, Amsterdam and Flushing in the Netherlands, Gibraltar in Spain, Frederikshavn and Kalundborg in Denmark, Gothenburg in Sweden, Malta, Cyprus, Malaysia, Vietnam, the Persian Gulf and Indian Ocean.

At the time of the signing of the agreement, GAC Solutions group vice president Christer Sjudoff said: "With the increased number of bases, GTSM can now respond faster and with greater mobility and flexibility, and operate anywhere and anytime, as required by clients. We also provide all necessary equipment such as hoses, fenders and support craft, as well as full back-up services including standby boats, equipment transportation and 24-hour communication."

Capt Singh Sodhi explained; "We have agreed an alliance with Mariflex to expand our global reach and to share investments in new bases and support one another with personnel and expertise. Together we can offer good global coverage and are actively working on developing new, strategic locations."

Today, MariFlex Transfer Services offering STS have bases in: - Flushing (served from Rotterdam); Rotterdam; Amsterdam and Antwerp. GTS Powered by MariFlex have bases and offer services in: - Malta; Cyprus; Fujairah/Dubai/Persian Gulf in general; Vietnam and Skaw and Kalundborg in Denmark.

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Don't forget the training budget

Joanne Kelleher, marketing executive, GAC Training & Service Solutions (GTSS), explains how modern training methods and technologies can help meet the plethora of commercial and operational challenges facing the tanker industry.

The modern tanker business faces a multitude of pressures in its operating environment. Faced with the global economic downturn, shrinking commercial margins, rising bunker prices, stringent environmental regulations and ongoing operational challenges, including piracy, it is understandable that some will regard training as just another cost.

However, the need to ensure that all your maritime professionals are qualified, capable and confident of doing their jobs to the best of their abilities is not only an investment worth making, but one that could also give you a crucial commercial advantage over your competitors, particularly when there is a shortage of qualified, experienced crew.

The 'human factor' may be a source of vulnerability at times, but it is also a source of great opportunity. In such tough economic times, it is vital that the skills of your key personnel are re-tuned and re-aligned in order to drive up productivity levels. Efficient tanker operations require that people with different tasks within your organisation that are nevertheless collaborating towards the same goal are able to understand the factors at work that are outside their immediate role.

Those on board a vessel will have practical

first hand knowledge, but can lack commercial experience. By contrast, shore-based personnel will understand the commercial aspects of tanker operations but will lack the operational experience of their seafaring colleagues. Working in these silos compromises the lubricity of the overall process and exposes vulnerabilities that lead to inefficiencies, or even threaten safety.

One consequence of the economic downturn has been the temptation to see training and crewing as 'soft' costs that can be cut in order to protect the bottom line. The UK's Marine Accident Investigation Board (MAIB), the IMO and DNV have highlighted concerns about corners being cut and seafarers serving in positions for which they lack the qualifications and experience.

This is despite the fact that the costs of training are low, relative to the investments that are put at risk. For example, an exportation LNG terminal that costs \$3 bill to build, with an LNGC alongside valued at \$250 mill, discharging a cargo worth \$20 mill, is a valuable asset - and a not inconsiderable safety, environmental and financial risk.

The best way to minimise that risk is to ensure that all parties with a share of the responsibility for implementing the correct



Joanne Kelleher, GTSS' marketing executive.

procedures, upholding regulations and maintaining standards are properly trained to do so.

The latest maritime training courses seek to achieve this by breaking down working silos between the operational and commercial activities in every tanker business.

Error consequences

There are many instances of where a commercial error has operational

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consequences and vice versa; a vessel may not see the importance of issuing a note of protest about a shoreside delay, while the shipmanagement team may not understand the true cause of a breakdown that rendered the Note of Readiness invalid. Bridging this knowledge gap between ship and shore can be a rich source of efficiency gains for tanker operators.

The drivers of change in the shipping industry are also the catalyst for new approaches in the world of maritime training - and there is no shortage of challenges facing tanker operators. Just as slow steaming has emerged to counter rising fuel costs and new environmental solutions have been developed to drive up vessel efficiency, so the training sector has responded by modernising its methods and tools in order to equip all maritime professionals with the skills that they need.

New technology is also playing a decisive role, not only in revolutionising shipping operations through the likes of ECDIS, and also in helping to deliver safe, effective, realistic and value-for-money training for crews and land-based personnel alike. This is reflected in the training courses provided at GTSS and elsewhere.

GTSS is a partnership between GAC, the global provider of shipping, logistics and marine services, and the National Maritime College of Ireland (NMCI), one of the most advanced maritime training facilities in the world. GTSS is committed to delivering high value, technologically advanced training. Right now there are a number of innovative new training tools, but among the most exciting advances is the increasing sophistication of marine simulators. This is best exemplified in the field of ship-to-ship transfer (STS) training.

STS is an inherently risky operation and the



Simulators are becoming increasingly sophisticated.

consequences of getting it wrong can be horrendous. It is essential that everyone involved in STS is properly trained; from mooring masters, senior masters and superintendents, to those co-ordinating operations from the shore. Specialist training for all those involved in STS is fundamental to realising efficiencies, minimising risk and ensuring crew welfare.

STS is also a clear example of where industry regulation, environmental awareness and market pressure have upped the ante in terms of the skills required by seafarers. The bar was raised even higher in January 2011 when new rules governing STS procedures took effect under the auspices of the IMO's MARPOL Annex 1, Chapter 8.

These new regulations place an even greater

onus on tanker owners and operators to ensure that STS activity is carried out competently and in a way that proactively manages the risk to personnel, vessels, equipment and the environment. This has prompted the training sector to utilise the latest technology to meet the industry's needs.

Shiphandling experience is the key to successful STS operations and simulator training is the ideal way to solve the riddle of how to gain experience, without the risks of 'on the job' training. GTSS offers a week-long STS simulator course at the NMCI, which covers a multitude of topics, including safe manoeuvring using the ship's engines and helm, the impact of natural forces, such as wind, current and interaction, the importance of approach planning, efficient management of

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bridge procedures and effective and safe bridge team management. The course progresses from the basics of STS procedures in benign weather conditions to worst-case scenarios in adverse conditions.

Largest simulator suite

NMCI has the largest simulator suite in the world with 17 simulators, supplied by Kongsberg Maritime, including one of the few full 360 deg simulators in the world and damper-mounted simulators, which can simulate the movement of the ocean.

There are many variables at the disposal of the course lecturer, including different vessel types, locations, weather conditions and every imaginable operational scenario, meaning that attendees can be trained on precisely the right type of vessel for their needs.

NMCI profile

The National Maritime College of Ireland is a state-of-the-art \$100 mill training facility in Cork.

Located on a 10-acre waterside campus, NMCI's facilities include a suite of 17 bridge, engine room, fleet work, VTS and GMDSS simulators, including one with 360 deg imaging, full-size ship engine and control rooms, workshops, electrical engineering facilities, Return to Scene digital imaging technology, a survival pool and fire-fighting training facilities.

As well as training the next generation of Irish seafarers and meeting the training requirements of the Irish Naval Service, NMCI trains maritime professionals from around the world through GTSS. ■

“ The more forward thinking tanker companies recognise that their human capital can be the strongest link in their value chain and are investing in training for their seafarers and land-based teams. ”

GTSS' course also complies with the requirements of the OCIMF 4th edition guidelines, which is particularly important for external organisations, including the oil majors, looking for the reassurance of competence that specialist courses provide.

Increasing numbers of companies are also asking for commercial STS training for their shoreside personnel that incorporate an element of simulated STS operations, in order to help them to understand the role of their seafaring colleagues.

To meet this demand, GTSS offers a commercial STS course that bridges the gap between ship and shore by covering the roles and responsibilities of all parties involved in STS operations, including the mooring master, the vessel owner, the shipping agent, the port and OCIMF, the vetting of the vessels involved, the equipment required, cargo quality inspection and measurement, the costs and the bills of lading.

There is a lot more to tanker operations than STS and other specialist tanker courses are available from maritime training providers, such as GTSS' course on tanker operations at the terminal, which focuses on the critical ship/shore interface between vessel and terminal from a commercial and a practical perspective and covers everything from pre-vessel arrival jetty inspections and ship/shore safety practices, to dealing with emergency

situations and defending demurrage claims.

Given the rapid growth of the LNG sector and the resulting demand for appropriately trained and qualified LNG professionals, there is also a growing demand for specialist LNGC training. GTSS' LNG courses cover the buying and selling of LNG, operational safety issues, the LNG value chain, world markets and operational shipping logistics, as well as a dedicated course on terminal operations.

Despite the fact that training budgets have come under considerable pressure during such tough economic times, the demands placed upon maritime professionals have rarely been higher. The more forward thinking tanker companies recognise that their human capital can be the strongest link in their value chain and are investing in training for their seafarers and land-based teams.

At a time when there has never been a greater need for safe, cost-effective training that better recreates the operational environment and drives up professional standards, the marine training sector is responding in a dynamic, creative and proactive fashion by delivering cutting edge training solutions that meet specialist needs with the right blend of practical and commercial skills.

In doing so, it is helping its tanker customers to minimise the risks and maximise the efficiencies in their operations. **TO**



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Training network up and running

A little while ago, Transas Marine launched the Transas Global ECDIS training network GET-Net.

This move was aimed at bringing together, the company's clients making use of land-based simulators and shipboard training methods.

With ECDIS mandation on its way and the new STCW ECDIS training requirements in force from 1st January 2012, the shipping industry is facing a challenging environment. Since most of the crews emanate from various places worldwide, it is desirable to have a good and standardised ECDIS training available in different locations, Transas said.

Transas GET-Net is an international partnership between Transas Marine and leading ECDIS training providers worldwide. All partnering training centres receive detailed instructor training and have to pass a quality audit.

The ECDIS training is based on a Germanischer Lloyd certified training course, which follows the ECDIS IMO Model Course 1.27, which has incorporated the requirements of the Manila Amendments to STCW.

The first training centres to enter the partnership were INTERSCHALT maritime systems AG (Hamburg and Manila), COSMOS Training Center (Athens), eIM Training Center (Piraeus) and MSG MarineServe GmbH (Hamburg).

Using GET-Net, a shipping company is able

to train locally thus save travelling costs, while at the same time getting a standardised course with guaranteed training quality.

Bjoern Roehlich, training manager, Transas Marine said at the time of its launch: "The GET-Net idea is to create a triple win situation for training centres, our ECDIS customers and Transas itself.

"Together we offer a variety of options; shipping companies can choose preferable training types and location and benefit from the high quality set by Transas Marine and its partners. It is also an answer to the increased responsibility for ECDIS training put on the makers by flag states and marine administrations like the latest MCA MIN 405", he explained.

Since the start, several more centres have joined, including EPSILON Hellas and the company's Epsilon Maritime Services based in Manila.

It is now a Transas approved training centre and provides Transas ECDIS equipment specific training and certification in Manila.

The entire investment is funded by EPSILON Hellas and the new and upgraded training facility was due to be up and running by the end of April this year.

Dutch member

Meanwhile, Alpatron Marine has become the first company in the Netherlands to join GET-Net.

Alpatron Marine will provide Transas and Alpatron equipment familiarisation courses in the new Rotterdam training centre.

The centre is equipped with the latest version of Alphabridge/Transas ECDIS equipment and a bridge simulator.

According to the GET-Net concept, a maximum of eight trainees are able to attend. This small group concept guarantees high learning success and an effective use of the ECDIS, Transas said. Besides the operational use of the ECDIS software, Alpatron will be able to teach the trainees all relevant chart handling operations, such as loading of charts, updates and licenses.

Alpatron is currently applying for the Dutch flag state approval to be able to offer Generic ECDIS training based on the Transas GET-Net training course.

CBT course

Last November, Transas announced the launch of an ECDIS CBT course certified by GL based on IMO Model Course 1.27.

Transas ECDIS CBT consists of 17 chapters and tests split by themes: ECDIS theory, basic functions of ECDIS, operational use of ECDIS, errors and malfunctions in ECDIS.

The combination of theoretical and practice parts enables trainees to gain necessary knowledge about the system they operate.

A trainee receives a certificate proving the successful completion of the CBT in order to prove equipment specific familiarisation. With this certificate the trainee may join a time reduced (two days) course in a Transas approved training centre to gain a full GL certified IMO Model Course 1.27 certificate in accordance with the Manila Amendments of STCW.

Transas ECDIS CBT is supplied together with free ECDIS Demo software developed to demonstrate the main ECDIS functionality and for training purposes. It includes simulation of navigational data (own ship and target motion, radar pictures and ENC's) and pre-set scenarios that display full-scale navigation situation.

The course is available in English on DVD, or online via Transas partner ShipGaz Training in Sweden.

It is designed for shipboard personnel who need to gain or refresh their knowledge on ECDIS operation and route planning. The course can be undertaken on board a vessel, or ashore and is for individual self-study.

Warsash restructures

As part of a restructuring programme by Southampton Solent University, Warsash Maritime Academy and the Faculty of Technology have been brought together to form a new Maritime and Technology Faculty.

John Millican has been appointed Dean of the new faculty and now retains strategic responsibility for Warsash Maritime Academy.

Andrew Hair became director of Warsash Maritime Academy on 9th March 2011, and assumed day-to-day responsibility for running the Academy, reporting to Millican.

He joined the Academy nine years ago

having spent some time at sea. He was recently in the role of associate director (business operations).

The Academy continues to operate as normal and will be retaining its individual autonomy and branding.

In separate developments, the University has made further significant investments in Warsash by progressing the construction of a new manned model shiphandling centre at Timsbury in Hampshire and also authorising the purchase of a new engine room simulator for installation at Warsash later this year.

The first manned model ship handling courses are scheduled to run at Timsbury in May 2011, with a formal launch event to be held in June. ■

Welcome to Donsö Tanker Meet!

On June 21–22 2011 **Shipgaz** and the shipping companies on Donsö arrange a two day tanker-shipping event on the island of Donsö.

In June 2011 it is time for the second Donsö Tanker Meet, same concept as in 2009 but even more specialized on tanker shipping.

In 2009 the event was a great success, attracting 400 shipping professionals taking part in speed meetings, seminars and after work activities.

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More about Donsö Tanker Meet at
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Several supporting shipping companies will be attending in 2011, so far the following:



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IACS chairman airs his views on the industry

TANKEROperator recently spoke with Noburu Ueda, chairman of the International Association of Classification Societies (IACS) and chairman and president of ClassNK, about a variety of problems facing the shipping industry.

Ueda first addressed the main issues that confronted him at IACS. He said; “My main goals during my term as IACS chairman have been first, the development of a set of new ‘Goal Based Standard’ compliant harmonised common structural rules (CSR), and second, to help the maritime industry address the technical challenges of maritime green house gas (GHG) emission reduction.”

With regard to the CSR, in order to better serve the needs of the maritime industry, IACS has been working to both harmonise the existing bulk carrier and tanker CSR, while also working to ensure that this new harmonised CSR is fully compliant with the IMO’s ‘Goal Based Standards’. IACS is currently dedicating all of its efforts to completing the new CSR prior to the IMO’s submission deadline of the end of 2013, he explained.

In addition, with regard to GHG emission reduction, IACS has been providing technical advice and guidance on the development calculation and certification methods for IMO’s EEDI scheme, the implementation of which could be decided as early as this July, when the IMO is expected to begin debating the final details of the scheme. For example, in order to ensure that the implementation of the EEDI scheme does not adversely affect ship safety, IACS has been investigating the technical issues related to establishing a minimum required speed for vessels.

Of course the smooth implementation of the new EEDI scheme will require more than just the participation of class societies, it will require the assistance and support of groups from throughout the industry, including shipowners, builders, and other maritime organisations.

To address this, IACS established a new

joint working group (JWG) with a number of leading maritime organisations at the last meeting of the IACS council in December. This new group will make use of the data from shipbuilders, owners and class societies to develop clear guidelines and rule interpretations for EEDI implementation.

Turning to the issues facing ClassNK, Ueda said; “As chairman and president of ClassNK, I have made it my goal to improve every aspect of our operations, and I think the fact that more than 20% of the world’s international tonnage on our register is proof of our success. However, I believe that further expansion is possible, but to do that we will need ways to provide even better service to our clients, and better ways to support the safe growth and development of the maritime industry.

“It is my goal to even better serve the maritime industry – in every way possible, from better and more efficient services to joint research projects. This will be a tremendous challenge, but I believe that if we can rise to this challenge, then it will have tremendous benefits for not only ClassNK, but also the entire maritime industry,” he said.

EEDI timetable

Explaining the timetable for the possible implementation of EEDI, Ueda said that both the adoption of the EEDI regulation scheme, one of the technical measures for reducing ship emissions, as well as requirements for maintaining a Ship Energy Efficiency Management Plan (SEEMP), a method for improving ships’ operational efficiency, are scheduled to be debated as potential amendments to MARPOL Annex VI at the 62nd meeting of the IMO’s Marine Environment Protection Committee (MEPC 62) scheduled to be held this July.

If the amendments are ratified at MEPC 62, then the EEDI scheme will be applicable to all ships contract for construction from 1st January 2013.

He also had a message for those that claim the EEDI won’t work. “Along with the continued growth of the world economy, seaborne cargo volumes, and in turn the size of the world fleet, are expected to grow in the future. As shipping is expected to grow in the future, a cap on emission volumes is simply not realistic,” Ueda said.

“Thus, if we are going to reduce GHG emissions practically and efficiently on a global scale, then a set of regulations designed to improve the efficiency of ships on a tonne-mile basis, in other words a set of regulations like the EEDI, is the only practical solution.

“Of course environmental regulations have implications that go far beyond just the maritime industry. These are global issues we are dealing with. In order to best address these challenges, it will be necessary for the IMO, national governments, and as well as the entire maritime community to work together if we are going to achieve a greener future for both our industry and the world,” he said.

He also explained that the deadline for the submitting the harmonised CSR to the IMO for GBS certification is the end of 2013 and at IACS, Ueda and his team are working to ensure that harmonisation of the bulk carrier and tanker CSR, as well as compliance with the GBS, are completed and adopted by that deadline. “We have not yet proposed a date for implementation, but the actual date will be set based on our consultation and co-operation with the wider maritime industry,” he said.

Talking of the services offered by ClassNK, Ueda said that the society also provides consulting services, but its goal has never been to provide the same wide range of

services that other class societies do. Instead, the goal has been to focus on providing just the services that owners, managers, and shipyards find essential. "By limiting our focus to just those services we can provide high quality services that are second to none in terms of satisfaction," he claimed.

"As the services we provide are aimed exclusively at shipowners, managers, yards, and other groups who have traditionally made use of our services as a classification society, there are very few areas where we compete directly with independent consultants.

"However, if we can provide our clients with increased value, or if there is a region that we can provide a specific solution to the problems faced by our clients, then we don't feel there is any reason to avoid competition with independent consultants," he explained.

Asian class society

Turning to events in Asia, he explained that an Association of Asian Classification Societies (ACS) was formally started in February last year with the adoption of the ACS Charter, which ClassNK was proud to have played a large part in drafting.

ACS was founded with two goals in mind:

- 1) Improved co-operation with other Asian maritime organisations.
- 2) To enhance the technical research activities of the members.

Ueda explained that with regard to improving co-operation with other maritime groups, ACS is currently hard at work developing co-

operative frameworks with the Asian Shipowners' Forum, as well as the Asian Shipbuilding Expert's Forum in order to strengthen the voice of the Asian maritime industry.

For the second goal of enhancing technical research, seven working groups have been established - on GBS, ship recycling, machinery seaworthiness, quality, Port State Control, ballast water management/GHG, and risk based design, in order to provide a way for members to improve their technical research capabilities in each of these areas.

Given the continued growth of economies in Asia, it is only natural that Asian shipowners will continue to grow both in terms of fleet size and importance. As one of the world's largest and fastest growing economies, China will be an important player in that story, and Ueda said that he expected China's importance as a shipowning nation to increase in the years to come.

As to the question of ClassNK's expansion on the back of burgeoning Asian owners, Ueda said; "As I mentioned above, with the growth of economies in Asia, the growth of Asian shipowning will play an important role in our future growth. However, with 180 mill gt on our register we are not only the leading Asian classification society, we are the world's leading classification society on a tonnage basis.

"My goal as chairman and president of ClassNK has to been to improve our services on a global scale, and so I believe we can

achieve greater growth around the globe, and not just in Asia," he said.

Substandard vessels

Addressing Asian Port State Control, he said that the Tokyo MOU has always taken a proactive approach to reducing substandard ships, and regularly conducts concentrated inspection campaigns in order to improve ship safety.

However, like other MOUs, the Tokyo MOU has also begun to step up its efforts in this area. For example, the Tokyo MOU has begun to publish lists of vessels that have been detained three or more times in a 12-month period, and will strictly inspect those vessels when they enter any port within the MOU.

All the tonnage which joins the ClassNK register, either as a newbuilding, or an existing vessel undergoes a thorough set of surveys in line with not only the class society's own rules, but applicable international conventions and regulations, as well as IACS rules and regulations.

"For class transfers, for example, immediately upon receiving an application we begin a thorough document review on vessel. This includes a review of its survey history, as well as its PSC records, and the results of this document review are then reviewed by the board, only once a vessel has successfully undergone this review will we accept an application for the transfer. Once that application has processed, we begin to carry out the transfer process in line with IACS strict regulations and survey requirements," he said

As for tankers entered with the society, Ueda said that at present tankers (oil and chemical) make up the second largest share of ClassNK's register, with just over 1,400 tankers totaling more than 33 mill gt on the register, or about 20% of the total register.

"We maintain a dedicated tanker section within our hull department, which specialises in the hull structures, design, operational requirements, and international treaties applicable to tankers of all types including both oil and chemical tankers, as well as LPG and LNG vessels.

"This section makes it possible for us to provide a full range of services for tankers throughout their service life - from design and construction, to operation and maintenance. For example, new amendments to the MARPOL treaty require tankers to maintain VOC management plans and STS operation plans. Thanks to our dedicated tanker section, we have the expert staff on hand to make the authorisation of these plan's a simple and easy process," he concluded.



Class NK's and IACS' Noburu Ueda outlines his goals.

TO

DNV looks into the crystal ball

DNV has published a Technology Outlook 2020 report, which highlights technologies that could have great impact in the maritime and energy sectors.

“We are in a decade of transition. Technological evolution is more likely than technological revolution, but we can expect the technology to be used in new areas,” said Elisabeth Harstad, managing director DNV research and innovation.

“We firmly believe that technology is a vital part of the solution for many of the global and industry challenges facing us today. Also, we believe that the best way to be prepared for the future is to have a broad view over technologies from the many industry sectors which we serve. We don’t claim to have all the answers, but we have based our opinions on our expertise and competence,” she said.

Technology Outlook 2020 looks at future technologies in four main areas: shipping, fossil energy, renewable and nuclear energy, and power systems. The report covers seven global megatrends, which DNV believes will effect developments in the selected areas. In addition, the report explores four scenarios, a combination of drivers which form possible alternative futures.

No techno revolution

Commenting on the key summary points, Harstad said “There is little of that which will characterise society in 2020 that is not already in the labs or on the drawing boards.

Technological developments take long, slow steps. Technological evolution is more likely than technological revolution, but we can expect the technology to be used in new areas – for example, we think that nanotechnology will be important for developing renewable energy. Information communication technology will permeate all technology.”

Fossil fuels will by far be the largest part of the energy mix in 2020 and Harstad said that she believed the focus will be on increasing efficiency and improving the environmental footprint from operations. “We will see increasingly more advanced subsea oil and gas production systems being used for separation and boosting, and drilling and intervention

technology will diversify, apply smarter monitoring and increase efficiency,” she explained

Shale game changer

She continued, “Unconventional oil and gas, mainly dominated by shale gas, will be a considerable part of the energy mix, and the challenges related to water treatment will have to be solved. Future refineries will face stricter emission requirements, and they will have to be far more ‘intelligent’ than they are today.”



DNV's Elisabeth Harstad.

While CO2 capture and storage technologies are maturing and becoming more cost efficient, the large scale use of them in 2020 will be limited, predicted Harstad. “Development of technologies for CO2 utilisation – turning CO2 into useful products – will be developed, but will probably struggle to become commercial to 2020,” she said.

Wind behind renewables

Turning to renewables, Harstad said; “The decade for introduction to the low carbon economy is underway...we will see cost reduction and efficiency improvements for the

renewables, but the deployment of these will depend a lot on infrastructure developments.

“For wind energy, we will see offshore and onshore going in different directions: onshore staying about the same size as they are today, though becoming smarter. Commercial offshore turbines might reach a capacity of 10 MW. Solar heat and power will grow,” she said.

“Power transmission systems will be one of the major issues in the transition process towards the low carbon economy,” argued Harstad and added, “Cross national super grids, offshore transmission grids to bring wind energy to shore, smart grids and managing variable output due to integration of renewables are all part of the solution.”

Sustainable shipping solutions

Innovative ships designs and port solutions are also covered in the report. “We will see concepts with modified hull forms, using air bubble lubrication, air cavity systems, and new types of surface materials and maybe ballast free ships,” said Harstad. “It is likely that we will see the application of more environmentally friendly fuels like LNG and to a lesser degree biofuels. Nuclear will also come into play in the future but will initially struggle to get public acceptance.

“Hybrid propulsion – the Prius of the Seas – might also be a reality in commercial shipping in 2020, in particular for ships with variable power demands,” she added.

Sustainable coastal communities

The Technology Outlook 2020 report also describes an idea for a new sustainable coastal community, accommodating millions of people, using to a large extent the technology advancements from the energy and maritime sectors.

“An essential aspect of a sustainable future is how we, as humans, live and act in daily life. At the same time, the world population is set to grow, not least in Asia, so how can we accommodate millions of people sustainably, yet at an acceptable standard of living?” **TO**

LR predicts a fundamental change in shipping

It seems that several class societies are realigning themselves to be ready for the challenges that lie ahead in the next 10 years. Lloyd's Register (LR) is certainly one.

LR CEO Richard Sadler said that one of the goals was to transfer the concept of shipping safety into other industries. "We will be going into critical infrastructure in many different areas," he said.

He stressed that LR had something more valuable than just making money. "Profit is the downfall of society going forward," he said. Having a charitable status LR is able to pump money back into the industry, he explained. He was also proud of the fact that LR had a truly independent opinion in many areas of industry.

He thought that the maritime industry would become increasingly just part of the overall supply chain, rather than a standalone industry. "Regulation is currently running ahead of technology," he opined. This was one of the drivers of moving to Southampton and the setting up of a research institution in Singapore.

"We have to understand technology more and ensure that components are safe, sustainable and dependable," he said. "The



Richard Sadler.

new chairman Thomas Thune Andersen is bringing this idea to the table."

Andersen said that the world was moving fast, but it was not LR's job to deliberate on energy sources, but rather help customers to embrace them in a safe and proper way.

Marine director Tom Boardley tried to look one or two years ahead at the newbuilding orderbook. He thought that South Korea believed that China had a price advantage, but finance could be a problem in that country going forward.

He admitted that LR had not addressed the environment sufficiently, but was now stepping up its activities and recruiting suitable experts. These included Katharine Palmer who joins LR this month from BP to head up the environmental product development team.

He said that the shipping debate had moved on this year to embrace piracy, but he had no doubt that the environment would soon swing back to centre stage. There are many issues to be faced by the shipping industry, such as the use of scrubbers, alternative fuels and the fitting of ballast water treatment systems. "What will the carbon regime be?" he asked. "Trading schemes or levies?"

Trading schemes

Boardley said that the Europeans were keen on trading schemes following the aviation industry. However, there were a lot more types of vessels trading than aircraft, he pointed out. The high bunker costs would continue to drive the need for new technology, while particulates would also help the engine manufacturers to produce more sophisticated technology.

He said that there were still archaic practices in charterparties regarding speed and consumption clauses when many vessel operators were opting for slow steaming.

LR's global marine risk adviser Vince



Thomas Thune Andersen.

Jenkins said the abatement technology would change the complexity of the crew as they will have to come up to speed with new innovations. As for LNG as a fuel, Jenkins said that methane slip would still have to be overcome, but he was keen to stress that LR did not favour one fuel over another. He also thought that EEDI would be adopted at the next MEPC meeting.

The LR hierarchy thought that as the world was being driven by legislation, outpacing strategy, the way we think will change. Consumers are driving shipping at a pace. LR's job is to ensure that the transport is safe, sustainable and dependable, they said. The whole global supply chain will change during the next 20 years. Society value will grow against profit value.

Andersen concluded; "LR is independent and it is not our role to decide one thing or another. We have to do the right things in the right way and continue for the next 250 years." He was alluding to LR's recent 250th anniversary.

From small beginnings

UK-based Martek Marine was founded in 2000 by current directors - Mike Pringle, Paul Luen and Steve Coulson - with an initial investment of £6,000 of their own money and operated out of a single business unit.

They previously worked in industry designing and supplying various instruments where they heard about the likelihood of marine equipment being required on vessels under SOLAS. “We decided to find out about it,” CEO Paul Luen explained.

The trio quickly realised that new equipment was required to be fitted on board vessels under the pending regulations. “Perhaps there was opportunity knocking,” Luen said.

“We decided to become masters of our own destiny and we are glad that we did. We spent time trawling through IMO meeting reports to get a feel for what was coming in the future. Martek Marine was born out of this,” Luen explained.

Martek first introduced water ingress detection equipment – Bulksafe - for the bulk carrier sector and since then has not looked back. Indeed, in 2005, the company won two prestigious UK Queen’s Awards – one for International Trade and the other for Innovation - for Bulksafe. The company has also won a host of regional and international awards both before and after.

Not stopping there, the company was determined to expand with more innovative ideas coming off the drawing board with the shipping industry’s input. The company is very much marketing led and not engineering led. “We ask the customer what he or she wants, rather than engineering a design that nobody wants,” Luen said. In addition, a close liaison was developed with the major class societies and other authorities.

Following Bulksafe, Martek launched MariNox, which was the first continuous engine emissions monitoring system to achieve type approval and remains the overwhelming market leader, while the company’s latest offering, the Lifeforce® Marine AED, is the only automated external defibrillator to be type approved for use in the hostile marine environment, the company claimed.

Martek was determined not to be caught up in the ‘bubble’ mentality by being exposed to the ‘ups and downs’ of the business, quickly

realising that the shipping industry was cyclical. “We also aim to be on the front foot regarding intellectual property (IP) to protect our interests and investments,” Luen said.

He explained that the company has strengthened over the past two years and now has strong cash deposits to play with. “We are very confident of the future,” he said.

All of Martek’s new equipment is put through rigorous type approval processes with no expense spared, which is the company’s policy. “For example, Navgard, our Bridge Navigational Watch Alarm System (BNWAS) has gone through this process and has a full complement of certificates,” Luen explained. To date, Navgard has gained type approval from most of the leading class societies.

Today, Martek is expanding its after sales/services/spares offering worldwide. At present, some 23 companies have been signed up as partners/sales agents and this year, they will be joined by a further 45, giving the company a global presence. For example, a Singapore sales and service office is due to be opened during the first quarter of this year.

“We aim to add value at the commissioning stage by offering initial training on board,” he stressed. However, Luen conceded that it was better for owners/operators to service the equipment themselves, due to environmental issues on the back of flying engineers all over the world.

Being relatively young, Luen said that he did not wish the company to sit on its laurels and would look at every opportunity for expansion, including future mergers, acquisitions and joint ventures to take Martek into the next stage of development.

At the time of writing, the Yorkshire-based company has a staff of 47 and a turnover of some £5.5 mill per year. The company is proud of the fact that it has not had to borrow to fund its investments in equipment manufacturing and research.

BNWAS offering

Luen’s pet project is Navgard, a BNWAS specifically designed to comply with SOLAS Regulation V/19 as amended by MSC.282(86) requiring a BNWAS to be installed on all new



Martek’s CEO and co-founder Paul Luen.

and existing ships. The system also meets the requirements of the performance standards set out by MSC.128(75) & IEC 62616.

The system comprises of either a bulkhead-mounted, or console mounted control panel with an on board PIR (Passive Infra-Red) movement detector. It is modular to accommodate any bridge size and layout with additional PIRs and/or manual resets both inside the bridge and weatherproof versions for the bridge wings.

For vessels under Lloyd’s Register classification, the system is also available with just manual reset functionality rather than PIRs to meet with LR type approval requirements.

In a nutshell, the new SOLAS chapter requires new vessels of over 150 gt constructed after 1st July 2011 to be equipped with a BNWAS.

Implementation will then be phased in, making BNWAS mandatory on existing tonnage over the following three years. All existing cargo vessels of over 3,000 gt have to be equipped not later than the first special survey after 1st July 2012 and all existing cargo ships over 500 gt by the first survey after 1st July 2013. The final category of vessels, cargo ships over 150 gt, will have to comply by 1st July 2014.

TO

Intertanko's Athens event - discussing the issues

This year, Intertanko's annual event takes place at the seaside resort of Vouliagmeni on the outskirts of Athens.

It will be held between 9th to 11th May at the Westin Athens Astir Palace Beach Resort along the famous coastal strip.

The proceedings kick off on Monday 9th May with Intertanko's Council dinner, which is reserved for Council members only.

On Tuesday, between 0900 and 1600, the Council will hold its annual meeting to be followed by the Intertanko Annual General Meeting between 1615 and 1700. It is open to all Intertanko members and associate members.

This is followed by the Annual Dinner, which is open to all registered delegates.

On Wednesday, between 0930 and 1730, Intertanko's seminar takes place complete

with a small exhibition.

The opening session will be delivered by a representative from the Greek Maritime Authority and Rear Admiral Brian Salerno, deputy commandant for operations at the US Coast Guard.

This is followed by a session on the tanker markets chaired by StealthGas' Harry Vafias. Among the speakers are Dr Christof Ruehl, chief economist at BP, Dr Leo Drollas, deputy executive director and chief economist at the Centre for Global Energy Studies (CGES) and Dave Saginaw, director of McQuilling Brokerage Partners.

The thorny question of piracy will also be addressed chaired by Col Richard Spencer,

chief of staff at EU Navfor. Speakers in this session include Matt Dunlop, CEO V Ships and chairman of Intertanko's advisory panel on piracy and maritime security, Stephen Askins, partner Ince & Co and Hans Feringa, president of Stolt Tankers.

Other topical issues in the marine industry today are ballast water treatment and green house gas (GHG) emissions.

These form the subjects of a technical debate led by chairman Henrik von Platen, executive vice president of Samco Shipholding and chairman of Intertanko's ISTECC. Also speaking is Jon Slangerup, CEO NEI Treatment Systems and Peter Boyd, director of operations at the Carbon War Room.

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Further speaking will be announced on Intertanko's website shortly.

In addition, the organisation has managed to attract an array of sponsors, including in no set order – Olympic Shipping & Management, Emarat Maritime, Dalian Ocean (COSCO), Anglo-Eastern, American Bureau of Shipping, Det Norske Veritas, Korean Register, Liberian International Ship & Corporate Registry (Liberian flag state administration), International Registries Inc (Marshall islands flag state administration), training concern Seagull and Constanta shipyard in Romania.

Piracy highlighted

Apart from GHG concerns, piracy is the main topic taking up governments and shipping organisations' time and money.

Highlighting just how much the scourge of piracy is affecting the shipping industry, at the beginning of March, Intertanko and its partners in the Round Table (RT) of international shipping organisations - BIMCO, the International Chamber of Shipping (ICS), the International Shipping Federation (ISF), Intercargo, and the International Transport Workers' Federation (ITF), launched the 'SOS Save Our Seafarers' campaign.

This campaign was aimed at encouraging

millions of people worldwide to put pressure on their national governments to crack down on piracy.

The recent extension of the pirates' operating area right across the Indian Ocean means that there are now no alternative routes to avoid the Somali pirate gangs, especially for tankers coming out of the Middle East Gulf.

Shipowners and seafarers are re-evaluating their current determination to ensure that these vital trade routes remain open, and are going to have to choose whether to trade through this area or not.

Over 800 seafarers are currently held hostage on their hijacked ships. Subjected to physical and psychological abuse for months at a time, they are held ransom for millions of dollars.

Yet even when caught red handed by naval forces, 80% of pirates are released to attack again. Why? Because the world's politicians don't realise the severity of this critical situation, the group said.

Six specific requests

The RT is specifically asking for governments to recognise the threat to seafarers and the world economy, and take the necessary steps

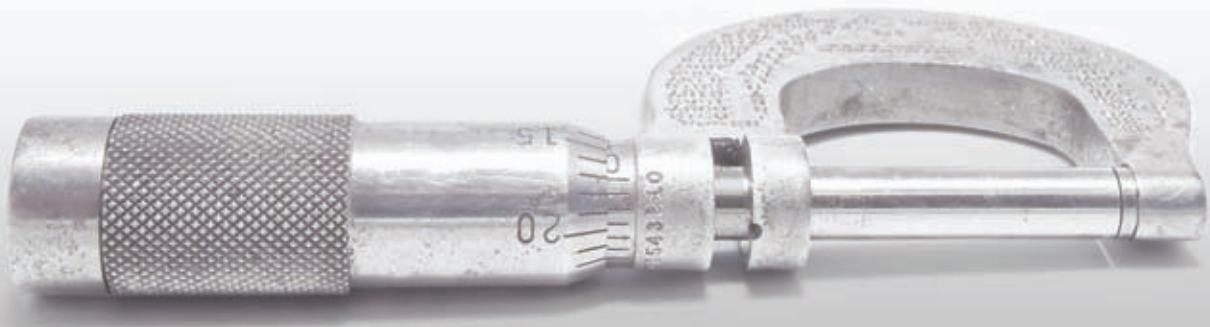
to eradicate piracy at sea and ashore by:

- Reducing the effectiveness of the easily-identifiable pirate motherships.
- Authorising naval forces to detain pirates and deliver them for prosecution and punishment.
- Fully criminalising all acts of piracy and intent to commit piracy under national laws in accordance with their mandatory duty to co-operate to suppress piracy under international conventions.
- Increasing naval assets available in this area.
- Providing greater protection and support for seafarers.
- Tracing and criminalising the organisers and financiers behind the criminal networks.

Intertanko chairman, Teekay's Graham Westgarth said at the campaign's launch; "Piracy is out of control. The pirates' extended reach through the use of hijacked merchant ships (so-called motherships) means that for tankers coming from the Gulf, there is no longer an optional route to avoid the risk of hijacking – and one captured tanker with 2 mill barrels of oil represents one fifth of US daily oil imports. Governments need to protect the world's shipping lanes by showing political will, not political indifference."

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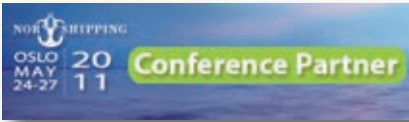
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Hal Preston, *Engineering Superintendent, BP Shipping*

Jim Sandkvist, *Vice President, SSPA SWEDEN AB*

Giulio Tirelli, *Marketing & Application Development Manager, Wärtsilä*

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Panel Discussion: Understanding the latest developments, issues and challenges in LNG today

Prevention is better than cure: - the increasing role of bunker testing

Recent calls by Norway and INTERTANKO to radically alter bunker controls have stoked the industry-wide debate around marine fuel quality standards, regulatory compliance and the operational consequences for tanker operators.**

Submitted to an IMO meeting in February, their new paper outlined recommendations that would essentially transform the way that the bunker industry operates, placing a far greater responsibility on the shoulders of bunker suppliers to ensure that the fuels they deliver meet stringent quality criteria.

This follows the implementation of the recently updated ISO 8217 regulations that ensured tighter guidelines on bunker fuel content last year. Although the IMO sub-committee recently rejected this proposal, Norwegian authorities are continuing their campaign and are preparing new initiatives ahead of the next MEPC meeting in July.

This ongoing campaign, much of which is focused around initiating improved health and safety, has served to highlight the impact of low sulphur fuels on marine diesel engines and the resulting damage and costs that can ensue through a more fragmented bunker market (leading to some bunker stems containing multiple-sourced blending feedstocks) - a well-documented challenge for modern ship operators.

The growing demand for commercial oil stocks also means that inventories are becoming even more important, due to fuel being stockpiled as a precaution against potential sweet crude shortages following supply disruption in the Middle East.

Bunker fuel is by far the biggest operating expense for a shipowner and incidences of

'off spec' bunker fuel samples are on the rise. Just this month, a leading fuel testing agency reported a rise in the number of off-spec bunker samples from the Mediterranean and Black Sea region, with 21% of the samples off-specification in 2010, increasing to 25% in the first months of 2011*.

Owners vulnerable

Some 70% to 80% of all fuels bunkered are not subjected to a laboratory analysis, leaving the shipowner in a very vulnerable position and totally dependent upon the fuel supplier, a significant commercial risk in these turbulent times.

For the operators of the *Blue Emerald*, an almost new 50,000 dwt tanker that ran adrift in an environmentally sensitive area after suffering engine failure caused by a problem with bunker fuel, the costs incurred by this damage would have been significant.

Over the past few years, and driven by increased demand for low sulphur bunker fuel and high bunker prices, some fuel blenders have been accused of paying less attention to the origin and quality of the cutter stock, which has resulted in fuel quality becoming more suspect. Ironically, the blending is often carried out in order to meet certain regulatory requirements but can fall short of the mark, presenting unstable product that carries weighty consequences for ship operators.

According to DNV, the lowering of the ECA sulphur limit to 1% on 1st July, 2010 has had a



Kittiwake's managing director Martin Lucas.

tangible impact on the global average and, concurrently, a substantial impact on cat fine levels in some of the biggest bunkering ports.

Fuels that are unstable due to incompatibility between the blend components, poor ignition and combustion, excessive sedimentation and chemical contamination are undoubtedly becoming more common, even if they appear to have met the ISO 8217: 2005 specification, let alone the revised ISO 8217: 2010. There has also been an increase in bunkers with elevated levels of abrasive fines and a low flash point.

By comparison, distillate fuels have historically been regarded as relatively problem-free, but there is a lack of independent market research that confirms whether consistent performance from these types of fuels is possible. In readiness for the heavy fuel oil bunker market being gradually replaced by distillates, higher quality sources are being sought to meet rising demand.

However, the industry remains in the dark about the extent to which future distillates will have a different composition that creates new and so far unknown challenges related both to engine operation and safety, as well as emissions – uncharted territory that needs to

“...distillate fuels have historically been regarded as relatively problem-free, but there is a lack of independent market research that confirms whether consistent performance from these types of fuels is possible.”

be explored further, and soon.

The margin for error when bunkering today's fuels is significant. Once the fuel is bunkered, it is the chief engineer's responsibility to see that it is both acceptable and provided with the correct treatment to render the fuel suitable for use in the engines. Fuel has to be settled, purified, preheated and filtered in order to render it fit for injection systems.

During handling and treatment on board, a number of problems can occur. These problems differ in scope and severity from fuel to fuel and ship to ship and although it is safe to say that every engineer encounters them as a matter of course, handling them can still be problematic. The global economic downturn has led to a squeeze on the quality of ships' personnel, notably chief engineers and operational cost cutting has undermined robust condition monitoring practices to the extent that 'bad fuel' can be said to have as much to do with poor handling as a sub-standard product.

Inconsistent

As product quality and composition is increasingly inconsistent, there has been an increase in use of higher viscosity and density

grades that sell for the lowest prices. Also as the various impurities carried in the crude stock are not extracted with the more valuable hydrocarbon fractions, they remain and are concentrated in the residual fuel grades.

Today the engine designer has to develop machines capable of operating on the worst grades of fuel available - not an easy task as the properties of these fuels are constantly varying.

Careful handling and pre-treatment of the fuel can solve or alleviate most problems and the engineer should have good information to hand about each fuel on board (such as a compatibility or stability rating). Some pitfalls cannot be easily solved by physical means alone and it is in this area that fuel treatment chemicals prove extremely cost effective.

Regular testing allows for the timely application of lubricity additives and stability improvers, available from the larger marine suppliers. These all have a useful role to play, provided that they are applied with the backing of good technical advice.

Enforcing best practice during the bunkering operation to ensure that a representative sample of the fuel is obtained is the first step. This can then be stored for

future reference in case of problems and tested on board the vessel for a number of key parameters, including IMO MARPOL Annex VI, required within ECAs.

Underpinning all of this good practice is on board testing. On board test equipment has existed for many years, but is advancing at a steady pace to meet the evolving needs of ship operators. For example, today's microchip technology can provide a number of key advantages including: fast and accurate results, automatic self calibration, correction of measured results to standard reference conditions and estimation of derived parameters such as the calculated carbon aromaticity index (CCAI).

Accurate results

On board testing will provide very accurate results for water, density, viscosity, salt, compatibility, as well as stability. An advantage of on board testing is that results are available immediately and before the fuel has to be used. In the event of problems it is therefore possible to mitigate the eventual cost, a very good position in instances of legal actions and liability. To back up on board

Responsible tank cleaning



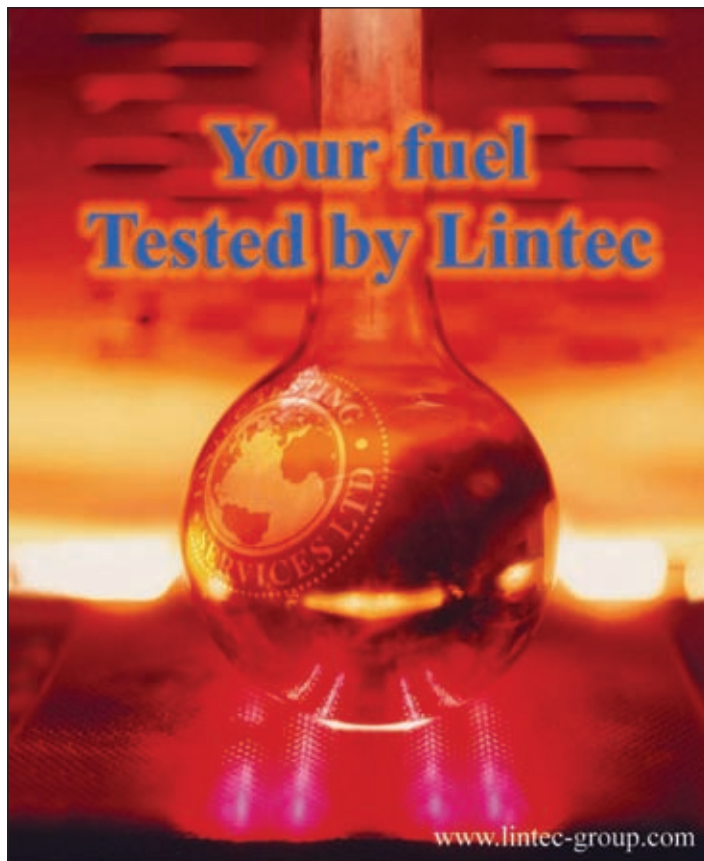
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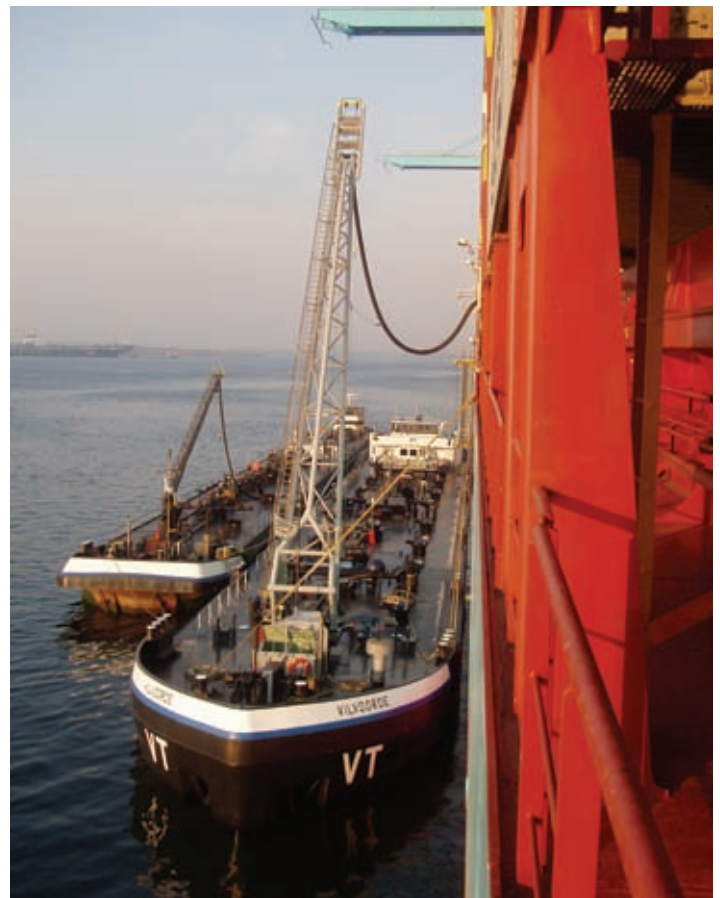
The HERMetric TOMSYS is a portable, digital, automatic, gas tight, level monitoring system, designed to continuously and automatically monitor the cargo tank liquid level during topping-off procedures. The unit accurately monitors the liquid level over the last upper three meters.

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Bunker controls could be radically controlled.

testing, onshore laboratory testing is a great 'insurance policy', although this should not be solely relied upon, as it is a slow process that can take weeks – inadequate when you consider the time-critical wear and tear to engines that can occur.

Kittiwake's sampling services and on board testing kits and those from the likes of FOBAS and DNV provide both test results and thorough analysis. Should problems arise, they are on hand to provide detailed technical support that is often beyond the capabilities of a hard-pressed marine superintendent.

While the ease of use of on board monitoring tools and securing the back up of onshore laboratory testing when needed presents little technical challenge for ship operators, to ensure that the benefits of using this technology are maximised, a shift in mindset is needed. Crew must be trained in regular maintenance processes and best practice to ensure that bunker sampling is at the forefront of minds and daily operational routine. Combining best practice with effective monitoring techniques is central to clamping down on the prevalence of 'off spec' fuel, as well as elevating industry standards.

As bunker fuel quality varies and engine health risks rise, so the benefits of trouble shooting using online tools and technology can equate to millions of dollars in savings.

Protecting against 'off spec' incidents and complying with emissions regulations must naturally be a minimum standard to adopt. Monitoring and fuel testing must now be seen as key to operational – as well as regulatory - success and the foundation for maintaining high performance standards, driving further efficiencies and maintaining competitive advantage.

* *'Off-spec samples increase in Mediterranean and Black Sea region', Bunkerworld, 4th March 2011.*

** *This article was written by Martin Lucas, managing director, Kittiwake Developments.*

TO

Veson upgrades bunker management tool

At the CMA shipping expo in March, Veson Nautical announced Phase II of the company's IMOS6 Bunker Management Module.

Bunker management professionals can work with yearly budgets in excess of \$300 mill, which can represent half of the cost of all voyages, so good bunker management can make or break not only a voyage, but also a company's profitability," explained John Veson, president of Veson Nautical.

"We developed IMOS6 Bunker Management Phase II after collaborating directly with our customers and users and incorporated their input into the product. We are pleased to offer our customers a new module that will provide bunker management professionals with the data they need to make the best possible decisions as they interact with charterers, voyage operators, and vessel crews," he said.

IMOS Bunker Management module provides complete workflow support for bunker estimates, bunker requests, price inquiries, and purchases. By increasing access to information and performance analysis, the bunker specialist now can make more strategically sound decisions in order to achieve better financial results, the company claimed.

"The Bunker Professional has a high pressure, 24 hour-a-day job, and providing technology that helps them succeed is very important. It is not unusual for bunker specialists to negotiate the purchase of thousands of tonnes of fuel every day, and manage monthly budgets of \$25 mill or more. So providing a solution that helps improve forecasting and enhance their negotiating position is critically important," said Jamie

Sheldon, Veson Nautical IMOS product director.

The Phase II module effectively aggregates bunker data, allowing operators and charterers visibility across the entire fleet.

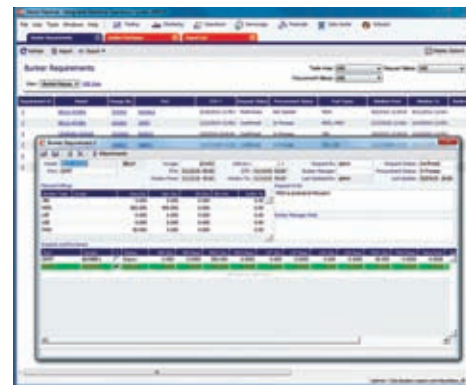
Sheldon explained, "When companies monitor bunker usage by vessel, instead of at the fleet level, they risk missing valuable information. They miss the opportunity to aggregate bunker purchases and increase their purchasing leverage. Phase II ensures those opportunities for competitive negotiation are not lost; it also promotes better evaluation of negotiating results by allowing the specialist to capture market benchmarks along with each purchase.

"Purchase reporting tools compare prices paid to market benchmarks by port, vessel, operator and fleet. Visibility across the entire fleet, not just per vessel, means that the bunker desk makes better and more informed decisions," he said.

The Phase II module also supports bunker testing processes for both pre-test and post delivery tests. A work list tracks the status of all outstanding tests, test results are captured, along with operational details for each bunker lifting.

Key features include:

- Automated bunker workflow and data collection.
- Ability to receive bunker requests directly from the vessel or a voyage operator.
- Automatic alerts for bunker requests and colour-coded notifications for approaching purchase deadlines.
- Convenient in-line purchase viewer



Veson has upgraded its bunker management offering.

provides access order status and all lifting details.

- User-tailored views for bunker requests, alerts, purchases and liftings.
- Role-based security for operator/bunker manager work processes.
- Integrated supplier database with ports serviced and remarks per port.
- Extensive reporting for request, purchase, and lifting histories.

Business benefits include:

- Improved bunker forecasting accuracy with fleet-wide position analysis.
- Ability to negotiate better pricing based on comprehensive purchase histories.
- Streamlined bunker desk communications to improve accuracy and throughput.
- Improved response time to changing bunker requirements with automated request alerting.
- Enhanced tracking and reporting of bunker purchase and lifting details.

Along with the new module, Veson Nautical's IMOS6 includes: chartering, operations, financials, planning, trading, demurrage, pooling, data centre and data services, which can be integrated to build complete solutions for commercial maritime organisations including, tankers, LNGCs, chemical carriers and others.

“Visibility across the entire fleet, not just per vessel, means that the bunker desk makes better and more informed decisions.”

Jamie Sheldon, product director, Veson Nautical IMOS

Alfa Laval launches bilge data recorder

Alfa Laval's PureBilge has been tested and certificated by DNV at below 5 ppm when the legal requirement is 15 ppm. It is now included in DNV's 'Clean Design' class notation.

The increasing number of cases where severe penalties –both financial and custodial - have been imposed for discharging bilge water with an unacceptably high oil content into the ocean, and falsification of oil record books, is a growing source of concern.

The recent, well-publicised activities of 'whistleblowers' and the resulting prosecutions clearly indicate the need for extreme caution when it comes to the entire process of bilge water management.

In response, Alfa Laval has launched the BlueBox bilge data recorder, which is claimed to be a tamper-proof solution designed to prevent irregularities from occurring in the future.

It was tested on several tankers, including an OSG newbuilding at SPP Sacheon shipyard in South Korea before being released in the market and is now being rolled out.

The reasons for its release are clear. As early as 2008, corporate criminal fines imposed involving oily water separators and environmental infractions had already reached \$145 mill, with the individuals involved sentenced to a total of 18 years' imprisonment.

The situation has now become so critical that the shipping industry has published a pamphlet entitled "Shipping industry guidance on the use of oily water separators".

Issued jointly by BIMCO, Intercargo, ICS, ISF, Intertanko and OCIMF, this publication expresses the global shipping industry's refusal to accept any non-compliance with MARPOL.

Government agencies and other authorities now employ both aerial and satellite ocean surveillance to detect violations, while Port State Controls authorise national coast guards to board and inspect all vessels in ports worldwide.

Thus, even minor, accidental infringements stand a good chance of being detected and can result in shipowners being forced to pay huge fines. While deliberate violations of MARPOL requirements and falsified records can render



Enter the blue box.

the perpetrators liable to criminal prosecution and imprisonment.

Treatment technologies

For bilge water treatment, the shipping industry pamphlet suggests that shipping companies should consider "installing the latest equipment, or an upgrade in capability, if existing equipment does not perform to requirements".

Various technologies exist for reducing the oil content in bilge water to 15 ppm. There are, for instance, static systems, such as gravitational coalescence, chemical treatment, adsorption filtration, and membrane filtration.

However, these 'batch' methods process large volumes for a short period of time and often fail to perform efficiently, since a ship's motion in rough sea adversely affects the treatment process, Alfa Laval said.

By far the most efficient technology for bilge water cleaning are dynamic systems utilising high speed centrifugal separation technology, and here Alfa Laval claimed that its PureBilge system is a success.

PureBilge provides a cleaning performance of 0-5 ppm oil content in the water, it is unaffected by sea heave, oil shocks or high solids loading and no backflushing is required. The company said that PureBilge is the only bilge water treatment system available on the market with a DNV test report stating 5 ppm at 5,000 litres per hour throughput has been reached when tested according to MEPC107(49) rules.

Alfa Laval said that shipowners are increasingly choosing to invest in this technology rather than risk prosecution. The company has more than 1,000 systems installed on board vessels to date.

However, it is not enough that the system works. The shipping company must be able to prove that it works. The industry pamphlet suggests that shipping companies should consider "using tamper resistant recording systems, alarms and printouts to verify equipment operation, valve position, flow, OWS ppm, incineration, ship's position, etc."

In line with this thinking, in collaboration with leading shipping industry players,

including tanker operators, Alfa Laval has developed the BlueBox bilge data recorder and incorporated it into the PureBilge system. It is a fully automatic, tamper-proof bilge data recorder with visuALog software and a digital ORB.

The data recorder not only records oil ppm level but also GPS position, separator operation, full alarm log, overboard valve position and overboard flow data.

The system's electromagnetic overboard flow meter records both current and total flow. This system is claimed by the manufacturer to be highly accurate. To protect against operator error or tampering, a proximity switch registers the actual position of the overboard valve.

Alarmed

If the flow meter is registering a flow when the overboard valve is in the recirculation position, the software will give an alarm and the system will shut down. The flow meter contains no moving parts and is calibrated for life.

The flow data recorded includes the time the overboard discharge starts, the oil content meter level over a discharge cycle, total

quantity of water pumped overboard in a discharge cycle and the time the overboard pumping stops.

The information is stored in an encrypted format for a minimum of 18 months and can be downloaded to a USB memory.

As the pamphlet states: "It is important that every effort is made to ensure that seafarers do not engage in any illegal conduct in the mistaken belief that it will benefit their employer." It advises shipping companies "...to install locked boxes or cages over monitoring equipment".

With the robust construction of a safe, Alfa Laval claimed that the data recorder is designed to prevent tampering. The complete bilge water sampling line is fully encapsulated and the unit can only be opened by authorised personnel.

The unit is equipped with a coded magnetic limit switch. The insertion of, for example a screwdriver, or any other implement between the cover and the main unit, in an attempt to force it open, will generate an alarm and cause the overboard valve to go into recirculation.

If the shipping company is required to

prove its innocence, the visuALog, utilising user-friendly software, speaks for itself. The bilge record book can be viewed and exact geographical positions and overboard flow data analysed.

Alfa Laval pointed out that PureBilge with the data recorder requires much less operator involvement than other systems. It not only reduces man-hours, but also minimises risk of operator, as well as ORB errors.

Unlike stand-alone units from other manufacturers, which must be purchased separately from the bilge water separator, BlueBox is fully integrated into the PureBilge module.

Alfa Laval also claimed that its BlueBox data recorder is being specified and installed on a growing number of tanker newbuilding projects, as the tanker market was one of the prime drivers in its development, the company explained.

It is being offered as a type approved standard option with PureBilge and can be purchased as a complete bilge water treatment package. The cost of the data recorder is priced at around €4,000 on top of the €85,000-€95,000 for the PureBilge system. TO

BlueBox
Advanced PureBilge Data Recorder

Position switch on overboard valve

GPS position

Tamper proof cover on OCM and complete sample line. Removal/tampering activates alarm and sets overboard valve in recirculation mode.

Overboard flow meter

visuALog software

The BlueBox records and the visuALog displays ppm value, GPS position, overboard flow, date and time, full alarm log and the position of the overboard valve

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Bilge water challenges: rethinking the solution

Bilge water treatment systems are carefully regulated by IMO resolution MEPC.60(33), or MEPC 107(49), however, many shipowners and ship operators possess type-approved systems that fail to do their job at sea*.

International regulations demand the reduction of oil content in bilge water to 15 ppm before it can be discharged into the ocean.

This lack of performance is a rising concern as discharge limits and the punishments for exceeding them grow increasingly strict. In order to ensure regulatory compliance, many shipowners and ship operators have been forced to equip their treatment systems with costly additional filters.

High-performance treatment systems do exist, but for various reasons they have been out of reach for many vessels. However, Alfa Laval, one of the leading bilge water treatment system providers, has recently introduced a new system that is claimed to change that dynamic.

Bilge water today is much different than it was 50 years ago. Back then it was a mixture of mainly diesel oil and water, which was relatively easy to separate with the help of gravity.

Now bilge water is a far more complicated challenge. It is an ever-changing cocktail, containing not only diesel oil and water, but also luboil, hydraulic oil, heavy fuel oil, oil

additives, chemicals and detergents – in short, anything that finds its way into the bilge wells. This unpredictable mixture has to be separated into three distinct phases - oil, water and sludge.

As if it were not difficult enough, the process is complicated by the presence of emulsions. Emulsions are even mixtures of immiscible liquids, such as tiny oil droplets mixed into the water phase of bilge water. Although gravity would normally cause these droplets to separate from the water, particles or surfactant chemicals from cleaning products used on board can prevent this process from happening.

Treatment technologies

A number of technologies exist for reducing oil content in bilge water to 15 ppm, including gravitational coalescence, chemical treatment, adsorption filtration, membrane filtration and centrifugal separation. With the exception of centrifugal separation, all of these are ‘batch’ methods that process large volumes for a short period of time.

Prior to January 2005, these technologies were regulated by IMO resolution MEPC.60

(33), which specified type-approval testing with a simple mixture of oil and water. This straightforward trial was easily managed by gravitational coalescers, which are still the predominant technology today.

MEPC.60(33) clearly states that: “It should be understood that a gravitational filtering equipment cannot be expected to be effective over the complete range of oils which might be carried on board ship,” adding that: “care should be taken that the bilge water is fed to the filtering equipment after the emulsion has broken.”

No wonder seafarers struggle to pump clean bilge water overboard.

Since January 2005, a stricter regulation has been in place, designed to better reflect the challenges of modern bilge water. Resolution MEPC.107(49) requires, in addition to testing with oil and water, testing with a stable emulsion that includes fine particles and a surfactant chemical.

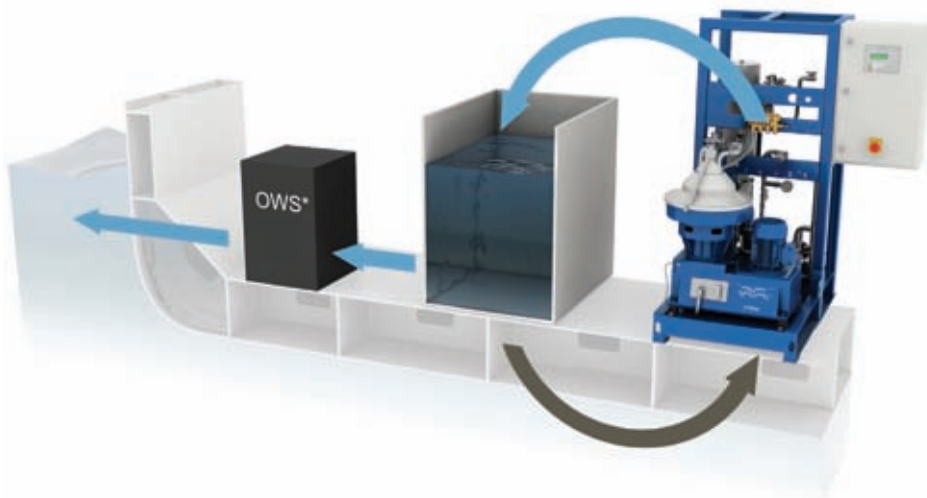
In spite of this, many of today’s type-approved bilge water treatment systems – including those approved under the new IMO resolution – still fail to reduce bilge water to 15 ppm in real-life operation.

Why systems fail

The poor performance of many bilge water treatment systems reflects serious weaknesses in the process of type approval. Although IMO resolution MEPC.107 (49) is an improvement over the preceding MEPC.60 (33), the testing procedure it outlines is still far removed from reality.

To begin with, resolution MEPC.107 (49) requires testing with just one surfactant chemical. Real bilge water, on the other hand, is a mixture containing many different chemicals that interact in complex ways.

Even more important, however, is the fact that resolution MEPC.107 (49) stipulates a test duration of just 2.5 hours. This short test run, conducted in stable conditions on shore,



Schematic of the workings of PreBilge.

does not mirror the difficulties of bilge water treatment over a longer period and on board a moving vessel.

As a result, manufacturers of bilge water treatment systems have had it easy. Instead of addressing the problems that their systems have with modern bilge water mixtures, they have been able to add filters after the poorly performing coalescer that soak up oil, chemicals and particles just long enough for their systems to pass the test. For this reason, countless shipowners and ship operators are still struggling to meet the established discharge limits.

Compensating for failure

When type-approved bilge water treatment systems underperform at sea – no matter which resolution they were approved under – it is shipowners and ship operators who face the operational, financial and even legal consequences.

So what can be done?

Good housekeeping is one of the most effective remedies, since it aims to prevent oil and chemicals from ever entering the bilge water tanks. IMO, recognising that much of today's treatment equipment is ineffective, has been a strong supporter of this practice. Its guideline in the matter is called IBTS –

Integrated Bilge water Treatment System. However, proper good housekeeping requires substantial investments in the form of manual labour and the retrofitting of additional tanks.

Otherwise, the most common option is to add filters that can be installed after the bilge water treatment system. These are usual bag filters to handle particles and adsorption filters to handle oil and emulsions. Although these reduce the number of oil-in-water alarms, they do so at a high operating cost. The filters have to be stocked on board and quickly become saturated, after which they must be stored and disposed of as oily waste.

If the tanks are full and no spare filters are available, there is simply no choice but to risk pumping waste overboard.

Switching difficulties

Naturally, shipowners and ship operators also have the option of switching to a high-performance bilge water treatment system. Centrifugal separators, for example, have been shown to deal effectively with oil, particles and tough emulsions, even under difficult operating conditions.

Yet changing bilge water treatment systems is not always easy as it sounds. Apart from the obvious issue of cost, there is also the issue of space. Medium-sized tankers and other

similar-sized vessels may have difficulty accommodating a full-size centrifugal bilge water separator in the engine room.

Medium-sized vessels are also more affected by rough seas than larger vessels, so the efficiency and stable performance offered by centrifugal separation could be a significant benefit.

Finally, there is the issue of the vessel's International Oil Pollution Prevention (IOPP) certificate, which must be redone if the bilge water treatment system is replaced. Some shipowners and ship operators shy away from this extra paperwork, as well as from the fact that re-calibration of the oil content meter is no longer possible to make on board when replacing a system approved under resolution MEPC.60(33).

For all of these reasons, many shipowners and ship operators have preferred to continue using uneconomical filters rather than replace their underperforming bilge water treatment systems.

A new way of thinking

Recently, another option has appeared that may appeal to frustrated shipowners and ship operators, including those who have thus far been unable or unwilling to switch to a new bilge water treatment technology.



PreBilge is easy to fit on board.



PureBilge with a BlueBox fitted.

“Employing a force 6,000 times stronger than that of gravity, PreBilge removes the heavy oils, particles and emulsions that pose difficulties for other treatment systems. To achieve the same result on its own, a gravitational coalescer would have to possess a settling area of 3,000 sq m”

PreBilge, a new centrifugal separation system developed by Alfa Laval, does away with the idea that one technology has to be replaced by another. Instead, it works in co-operation with the bilge water treatment system already installed, providing an effective and economical helping hand.

The principle is simple. PreBilge is installed as a continuous pre-treatment loop, starting and ending at the bilge water tank. Connected in much the same way that a lube oil separator is connected to a lube oil tank, it does its job in a similar fashion. Just as the lube oil separator keeps the lube oil tank clean, PreBilge continuously maintains the bilge water tank, ensuring a clean bilge water feed that the existing treatment system can handle.

Since the oil monitoring and overboard discharge are handled by the existing treatment system, no type approval or adjustment to the vessel's IOPP certificate are necessary.

PreBilge technology

PreBilge makes use of centrifugal separation, which is the most effective means available for dealing with complex bilge water mixtures. This is why, in spite of its small size, it can solve the problems of larger systems.

Employing a force 6,000 times stronger than that of gravity, PreBilge removes the heavy oils, particles and emulsions that pose difficulties for other treatment systems. To achieve the same result on its own, a gravitational coalescer would have to possess

a settling area of 3,000 sq m.

Because the rotation of the liquid in the separator bowl creates a gyroscopic effect, the process is also immune to the vessel's own pitch and roll. For this reason, PreBilge has the same high separation efficiency in any operating conditions.

With PreBilge providing pre-treatment, the difficult oils, particles and emulsions are removed before they ever enter the feed to the existing bilge water treatment system. This means that no alarms are triggered, which saves the crew the time and hassle of investigating and rectifying them.

In addition, it saves the time of and cost associated with filter maintenance. Put simply, additional filters are no longer needed once PreBilge has been put into operation.

In light of the cost and relatively short life expectancy of filters, their elimination can actually reduce a vessel's operating costs by thousands of euros per year. So with PreBilge assisting the existing bilge water treatment system, treatment performance becomes consistently high while the operating costs become consistently low.

Installation and operation

Alfa Laval delivers PreBilge as a compact module with a footprint of just 1.5 sq m, with a progressive-cavity feed pump on a separate skid. Easy to install even in smaller engine rooms, it can be flexibly placed with pipe connections drawn as needed. No proximity to the vessel's bilge water tank is required.

Several different operating voltages are

available for PreBilge, as are a number of different heating options. Depending on the vessel's requirements, the module can incorporate a steam heater, an electric heater or a plate heat exchanger (PHE) to use hot water as heating media, for example, engine cooling water. If heating coils or immersion heaters are already available on board, no additional heating is necessary.

As for its operation, PreBilge has a capacity of 500 litres per hour, which is 10 times the rate at which vessels normally accumulate bilge water. However, because it is designed to operate continuously, this is of relatively little importance. PreBilge is designed to be run day and night and in all possible operating conditions, stopping for routine maintenance only once every 2,000 hours.

With the introduction of PreBilge to the marketplace, there is finally a reliable and affordable performance fix for today's inadequate bilge water treatment systems. In this sense, Alfa Laval has introduced not only a new bilge water treatment system, but also a new way of thinking.

Finally, the MEPC.60(33) systems can work as intended – with the feed free from heavy fuel oil and emulsions. And for shipowners and ship operators currently struggling with bilge water challenges, it is likely to be welcome thinking indeed.

TO

**This is an extract from a paper written by Alfa Laval.*



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Game changing new chemical tanker coating introduced

International Paint has introduced Interline®9001, a new bimodal epoxy coating specifically designed for chemical tankers' cargo tanks.

With enhanced cargo resistance, zero absorption for many cargoes and fewer cycling restrictions, Interline®9001 simplifies the carriage of a wide range of liquid cargoes, optimising vessel earning potential, IP claimed.

Modern chemical tankers built to IMO Ship type I, II and III are designed and equipped to handle a very wide range of liquid cargoes, ranging from relatively innocuous materials, such as vegetable oils, to more aggressive types, such as ethylene dichloride and caustic soda.

Most chemical tankers are fitted with coated mild steel tanks, stainless steel tanks, or a combination of both.

The most commonly used type of coating on mild steel tanks is epoxy phenolic, which provides broad cargo carriage capability but can absorb and retain certain cargoes. This can create a difficult cleaning challenge to remove any absorbed cargo and thus minimise the risk of contaminating subsequent cargoes. A 'recovery period' may also be required.

The extra activities needed with this type of coating can incur significant expense for a ship operator in terms of time and money.

The next most common type is zinc silicate. These coatings provide excellent resistance to solvents and pure chemicals but are limited in their use due to an inability to resist acids and alkalis. The rough surface of zinc silicate coatings can also be difficult to clean, again costing time and money.

IP explained that the costs of on board cleaning are significant. Bunkers for hot water for example could mean a tank cleaning operation alone adding over \$100,000 to operating expenses for one full vessel clean and this doesn't take into account manpower or costs of cleaning materials.

Andrew Hopkinson, IP's business development manager explained that

Interline®9001 was designed to deliver greater efficiency and flexibility in the operation of chemical tankers, easily switching from one cargo to the next with minimal downtime. It can carry all of the cargoes that standard epoxy phenolic technology can, plus a further 25% of the large volume cargoes that it cannot and has over 60% fewer cycling restrictions.

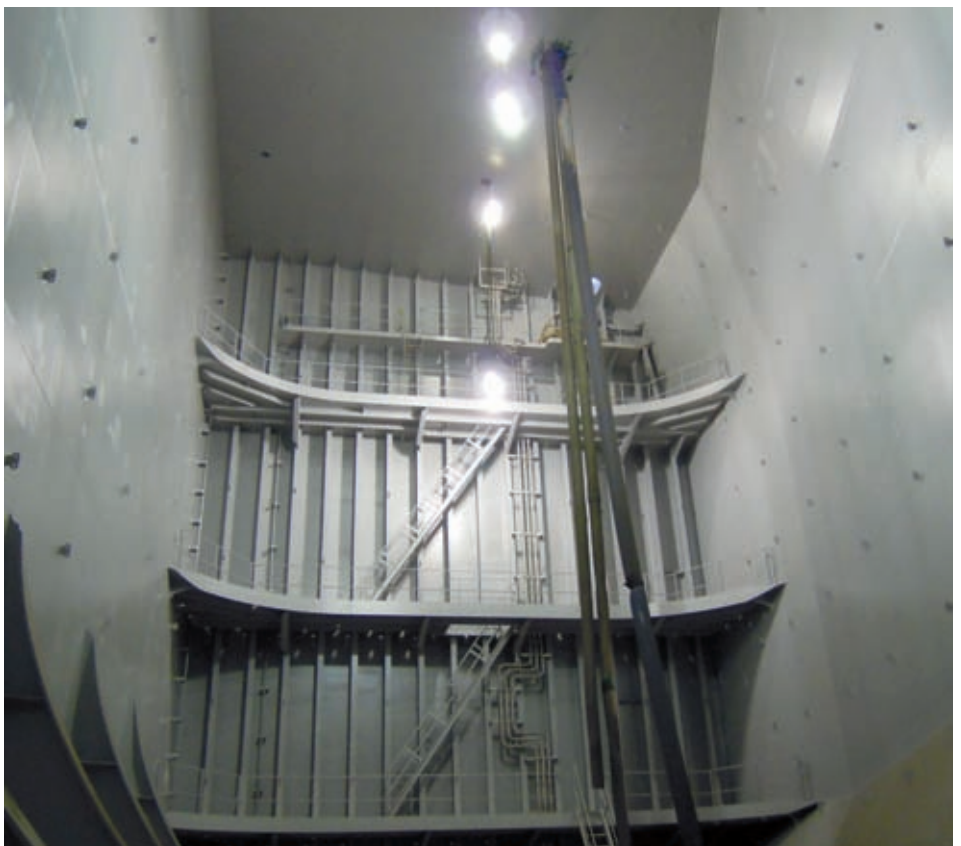
He claimed that the new coating could handle all but 10 out of the 1,000 cargoes on the IMO list. He also said that the technology opened up new -previously restricted - cargo sequences for the carriage of aggressive cargoes, for example, methanol to fatty acids to ethylene dichloride back to back, with no

coating recovery required.

Its low cargo absorption profile reduces the risk of contamination between cargoes and combined with its smooth, glossy surface, can cut cleaning time and materials by up to 70% compared to standard epoxy phenolics, or zinc silicates.

With reduced cleaning requirements comes a corresponding reduction in fuel and CO2 emissions. In addition, a low volatile organic (VOC) content and 80% volume solids helps to enhance operator environmental profile.

Based on bimodal epoxy technology, Interline®9001 is a carefully engineered blend of polymers. First, a special combination of low and high molecular



It takes around five days to coat a large tank.



IP's new tank coating could last for up to 15 years.

weight polymers creates a loosely bound, but highly cross linked flexible network chain on ambient curing.

The post cure process then locks these network chains firmly together to provide a highly chemical resistant paint film offering low absorption properties and easy clean while still maintaining flexibility to ensure crack resistance on welds when subjected to vessel flexing, Hopkinson said.

He claimed that the new coating would last about twice as long as an epoxy phenolic type coating and could easily handle cargoes, such as ultra low sulphur diesel fuel, which is being carried in greater volumes, due to the IMO restrictions on high sulphur bearing fuels.

Bunker costs reduced

Methanol was one of the largest cargoes carried today and to clean the cargo tanks, it would take around \$100,000 worth of bunkers. This activity could occur about six or seven times per year, which is a costly exercise. Hopkinson claimed that the cost could be significantly reduced by using the new coating.

The product was assessed by L&I Maritime (UK), which offers consultancy services to the chemical tanker market.

L&I Maritime's Guy Johnson said; "Having

assessed the cleaning properties of Interline®9001 in a range of cargoes and in accordance with the Dr Verwey Tank Cleaning guidelines*, it is evident that compared to the industry standard epoxy phenolic and zinc silicate systems, Interline®9001 is easier and quicker to clean.

"Furthermore, there is data to support the claim that when Interline®9001 is cleaned in direct accordance with Dr Verwey, or by up to 70% less than Dr Verwey recommends, the level of cleanliness achieved is the same. This will likely translate into considerable savings in time, materials and manpower for vessel operators when cleaning from one cargo to the next," he concluded.

This level of efficiency means that a typical 45,000 dwt chemical/parcel tanker could reduce its CO2 emissions by up to 400 tonnes each time it carries out a full vessel clean.

Hopkinson said, "Interline®9001 is the result of working very closely with customers to fully understand their needs while engaging cutting edge research in our dedicated tank lining laboratory.

"Our detailed knowledge of the most aggressive cargoes, together with our experience in tank coating application, allows us to offer a new product that maximises both operational and environmental efficiency in an

increasingly challenging market. We believe Interline®9001 represents a smarter solution to maximising profitability," he said.

Market potential

He outlined the market potential saying that between 2002 and 2102, the number of vessels had doubled. Today, there are about 4,000 chemical tankers and 3,000 product tankers in service with about 800 to 900 more on order in each sector. In addition, the size of the vessels has grown with the average rising from 20,000 dwt to 30,000 dwt and even 75,000 dwt chemical tankers being ordered.

Although new orders had virtually dried up, Hopkinson said that he was expecting contracting activity to pick up again in 12-18 months time. He said that IP was negotiating for about 14 contracts with seven different owners. The vessels involved range from 2,500 dwt to 45,000 dwt. They are split between six newbuildings with the other eight being repair & maintenance contracts.

He said that the thrust of IP's marketing campaign was aimed at owners rather than shipbuilders, as the builders tend to always quote for a ship contract with the cheapest possible option.

IP saw the market potential for the new coating both in repair & maintenance and newbuildings, as the older vessels need their cargo tanks re-coated, which for epoxy phenolic lasts around seven and a half years. Although not tested for that length of time, IP thought that Interline®9001 would last around 15 years. The company said that the product had been under development for 12 years.

For a larger vessels, a full coating would take around 30 days with one tank taking five days from start to finish. It has a higher cost base – about \$1 mill for a 45,000 dwt vessel – but Hopkinson said that the payback time would be within 12-18 months, depending on the size of the vessel and the number of tanks involved.

The amount of paint involved for a full coating ranges from 1,500-2,000 litres for a 3,000 dwt vessel to 15,000 litres for a 45,000 dwt chemical tanker.

**Dr A Verwey is the author and publisher of the well known and worldwide used Tank Cleaning Guide.*

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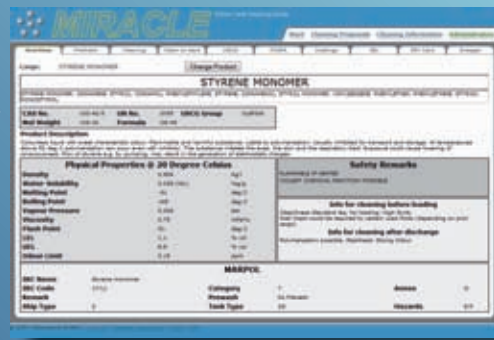
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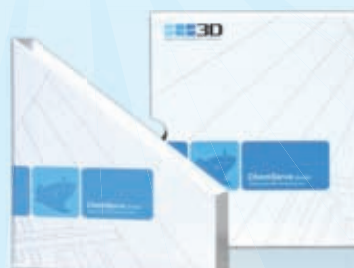
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BSM installs an LCHS in the Philippines

L-3 MPRI has installed a liquid cargo handling simulator in the new Bernhard Schulte Shipmanagement (BSM) Maritime Training Centre, Philippines.

The company has fitted its safe cargo liquid cargo handling simulator (LCHS) in BSM's new training centre, which officially opened on 21st January, 2011 in Manila.

The simulator is being used to train and enhance the skills of personnel operating BSM's extensive fleet of owned and managed liquid cargo vessels.

BSM, one of the world's largest shipmanagement companies, said that it was firmly committed to the Philippines and currently has over 7,000 Filipino seafarers in its pool.

L-3 MPRI's safe cargo training system works with one instructor and six student workstations, each fitted with dual monitor displays and equipped with three ship models, allowing training to be conducted in all the main liquid cargo disciplines of chemical, gas and oil operations.

It is also one of the first installations to use the new 5.0 version of the LCHS software. In

addition, to assist with the system setup, L-3 MPRI provided course materials for all three vessel types, as well as specialised training for future instructors, both in the technical operation of the simulator and the training techniques that should be used to ensure best practices.

The LCHS installation in Manila continues a long-standing relationship between BSM and L-3 MPRI.

BSM, with its strong focus on continuous improvement in all areas of its operation, has also invested in LCHS systems and bridge and engine simulators in its training centres in Cyprus, India and Poland.

L-3 MPRI, is a US-based global provider of integrated training solutions, which includes simulation-based training systems, services and turnkey training facilities.

Also in another move, the LCHS installed at the Italian Maritime Academy Philippines (IMAP) has been accredited by the Registro Italiano Navale (RINA) for use in the delivery of the Tanker Officer Training Standards (TOTS) training and assessment programmes provided by the academy.

IMAP provides training to Filipino

seafarers, and the simulator will be used to ensure that all personnel are trained to the highest levels.

The models and course material available with the simulator are fully compatible with TOTS, simplifying the accreditation process. To assist with the verification of personnel against the TOTS requirements, IMAP and L-3 MPRI will collaborate to develop the detailed training and assessment criteria that will allow the progress and knowledge of each student to be recorded and verified using the L-3 MPRI WISE assessment system.

L-3's WISE assessment and WISE virtual instructor systems provide the tools to ensure trainer assessments are fair, delivered in a consistent way and include the detailed records needed to support IMAP's requirements.

"The accreditation by RINA confirms that our LCHS system is fully capable of providing a platform for training and assessment courses that meets all the current international and industry standards," said Dennis Corrigan, senior vice president and general manager of L-3 MPRI's training systems group. ■

TANKEROperator

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eCourse in tank cleaning now available

With the ever increasing focus on safety, the environment and not least financial sustainability, tanker operators and crews are faced with a huge number of issues and tasks to be dealt with professionally and in a safe and cost efficient way.

One of these recurring tasks is the cleaning of cargo tanks, be that for the purpose of gas freeing or simply to prepare to carry the next cargo.

It is well known within the industry that carrying out this task often involves a very high cost. A cost that is probably quite often too high, both in monetary and safety terms.

One of the reasons for this state of affairs is the apparent lack of understanding of the basic principles involved in cleaning tanks both on the part of vessel crews and the shore based superintendents.

Possibly because of a quicker turnaround among staff in general, maybe because of a huge influx of young, inexperienced seafarers

with a consequent knock-on effect on officers recruited for the shore based positions, or maybe a combination of these and other factors.

Obviously one of the avenues towards rectifying the situation is quality training. Training that as a minimum should cover the following subjects:

- Safety requirements.
- Efficient tank cleaning.
- Potential risks and hazards.
- Environmental and financial impact.
- Assessment & certification.

Marstal Navigationssskole in Denmark has developed an e-learning course covering these subjects. The course is based on the school's vast experience in training in all areas of the tanker segment gathered over the last 40 years.

It is offered to tanker owners and operators as an offline e-learning course on CDs to enable them to purchase and distribute the CDs to their vessels.

The duration of the course is between two to four hours depending on the background and qualifications of the participants. ■

“ One of the reasons for this state of affairs is the apparent lack of understanding of the basic principles involved in cleaning tanks both on the part of vessel crews and the shore based superintendents. ”



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Shipping industry embraces Scanjet anti-piracy solution

Against a backdrop of rising piracy on the high seas, particularly from Somali-based attackers, marine equipment specialist Scanjet claimed that its SCR 360 APR water cannon marine protection system (MPS) is in increasing demand.

The International Maritime Bureau (IMB) recently confirmed that 2010 was the worst year for pirate attacks on shipping on record. A total of 53 ships were hijacked, while owners reported 445 attacks on vessels in 2010, up 10% on 2009. The human cost was severe, with 1,181 crew members taken hostage and eight killed.

Scanjet sales director Bjorn Lundgren said, "After its launch in 2009, the take-up of the Scanjet MPS was slow to begin with, but since the summer of 2010 demand has really exploded. The level of enquiries has picked up at an incredible pace in recent months and is not slowing down, as owners come to realise they have to do whatever they can to protect their vessels and crews."



Scanjet's system can be fitted on board small to VLCC dimensioned tankers.

A large number of vessels are now equipped with the Scanjet MPS system, the majority being tankers, ranging from small chemical carriers to large VLCCs. A wide variety of other ship types have also been equipped with the anti-piracy technology, including LNGCs.

Installations are individually tailored for each vessel based on the available pump capacity on board.

Lundgren said, "Many owners and operators are aware of the problem, but do not realise that solutions like the MPS exist and do work. As the message is getting across so the level of interest is rising fast."

Equipping vessels with the MPS offers an effective and environmentally friendly way of protecting vessels and crew, Scanjet claimed.

The water cannons provide deterrents that can be seen at a distance and clearly show to pirates that the vessel is protected. They also represent a non-provocative form of protection as the water beams generated are not lethal. Lundgren added, "The MPS works. It is highly significant that none of the vessels that have MPS on board have been successfully attacked."

Developed in line with IMO MSC. 1/Circ. 1334 recommendations, the SC 360APR MPS is a high capacity anti-piracy water cannon, incorporating multi-nozzle machines that are driven by the flow of sea water using existing pumps on board. Based on the Scanjet tank cleaning machine technology, the system operates automatically with nozzles rotating continuously through 360 deg, requires no manual operation and does not need chemicals, or steam additives.

Dedicated to tank cleaning equipment and anti-piracy equipment, Scanjet delivers from



There should be a strong water beam emitted.

its own facilities in Sweden to ensure quality control and convenient research and development for its engineering department.

Since its launch, the company has continuously upgraded the MPS system to make it even more durable and reliable in tough marine conditions; the rotation speed of the system has been optimised, at four to six rev/min, to maximise protection against boarding by pirates; and the flow of water, now 50 cu m-100 cu m per hour, has been improved. Furthermore, to optimise the downward pressure of the water, a block has been installed to prevent water being projected upwards. "We emphasise the need for a strong and powerful water beam," said Lundgren. "Otherwise it is just a shower that does not really frighten anyone."

The system is made up of three main parts - a cannon gun unit, a turbine powered drive and a mounting bracket. Once activated the system will continue running until the vessel is safe and the pumps are switched off, allowing the crew to be locked down in safe areas on board if necessary.

Further benefits include ease of installation and removal, as it can be mounted without the need for hot work; the fact that the machine length and horizontal position can be individually adapted to meet the requirements of particular hull shapes - a feature unique to Scanjet - and its ability to be offered, as either a permanent or portable solution. The machines complement existing razor wire, with the rotating nozzles either outside or operating in the in opening gaps of the wire. A VRC remote control valve system is also now available as an optional extra. ■

Advanced oil filtration solutions for Asian market

Sojitz Corp has entered into a co-operation agreement with leading Danish green technology and liquid filtration specialist Johnsen Oil.

This will mean the wider availability of a new portfolio of state-of-the-art liquid filtration systems in Asia for the maritime industry.

As part of the co-operation, Sojitz Corp's maritime arm, Sojitz Marine, will introduce Johnsen Oil's filtration systems to its network of partner companies.

These include the leading engine manufacturers, such as MAN Diesel, Wärtsilä,

Rolls-Royce, Caterpillar, Daihatsu, Yanmar, GE Jenbacher and MTU, and their respective licensees in the Asian region.

These also include major shipbuilding and heavy manufacturing corporations like Mitsubishi Heavy Industries, Kawasaki Heavy Industries, Doosan Heavy Industries, Hyundai Heavy Industries, Samsung Heavy Industries and more.

Johnsen Oil's unique liquid filtration products are based on a new generation of environmentally focused filtration technology.

This co-operative agreement started on 23rd February 2011. ■

Martek steps up MariNOx technology

This is MariNOx Evolution, which is the latest version of the MariNOx diesel engine emissions monitoring system.

While MariNOx Evolution is based largely on the existing tried-and-tested MariNOx technology, which has been successfully installed on over 100 vessels worldwide, it includes a number of new features designed to enhance efficiency.

The installation and running of the new system has been substantially refined by the incorporation of a single, daisy-chain sample line design, replacing the previous arrangement, which required several separate sample lines.

Reducing the number of sample lines, and cutting the amount of cabling on board, will take a significant amount of time and money out of the on board installation process. Furthermore, the amount of power needed to heat the sample lines has also been drastically reduced by having the single sample line configuration.

According to Steve Coulson, Martek Marine's marketing director, "In avoiding the need for multiple, separate sample lines, MariNOx Evolution represents a significant step forward. This is a much simpler arrangement that will benefit customers and shipyards alike, by virtue of its less complex installation."

The technology also comes with more

advanced DataLINK software that gives the user greater control over the emissions monitoring process. This allows for more accurate performance management of the diesel engines, thereby helping users further reduce operational costs and harmful emissions.

The latest software shipped with MariNOx Evolution makes use of the IMO's new Energy Efficiency Design Index (EEDI) formula and this has further enhanced the accuracy of emissions level recording and trend analysis.

As an optional extra, MariNOx Evolution can be configured to integrate opacity sensor input, measuring the density of engine smoke, directly into its control software. "This makes MariNOx Evolution unique in the market," claimed Coulson, "and we believe this new feature will greatly assist shipowners in monitoring the performance of marine diesel engines in order to reduce environmental impact."

The first order for MariNOx Evolution has recently been completed and other contracts have been confirmed for the new generation system, which is now Martek marine's standard emissions monitoring offer.

MariNOx was the first type approved system for monitoring NOx, SOx and CO2 emissions. It was designed to help shipowners comply as easily as possible with Marpol Annex IV rules, as well as the NOx Technical Code and MEPC 103 (409).

The system provides continuous monitoring



Martek has upgraded its flagship MariNOx system.

of exhaust gases and engine/ambient parameters to calculate NOx emissions and enables continuous monitoring of engine performance to deliver fuel savings of up to 4%.

MariNOx is complimented by the DataLINK software suite which can be used to record and trend each installed engine, boiler or gas turbine and to display both instantaneous and historical data. ■

ExxonMobil introduces Mobilgear SHC MT 68

ExxonMobil Marine Lubricants has introduced Mobilgear SHC MT 68, a fully synthetic extreme pressure (EP) marine gear oil.

This has been formulated to optimise the performance of equipment operating under extreme conditions.

The new product resists micropitting while protecting marine thruster gear drives against conventional forms of wear and corrosion.

Mobilgear SHC MT 68 was developed to meet global marketplace demand for a synthetic EP gear oil with excellent wear and corrosion protection, operability at both high and low temperatures and compatibility with industry-standard gearbox seal materials.

The oil has been approved by Brunvoll, one of the world's leading manufacturers of thruster systems.

"Today's marine thrusters are operating under higher temperatures and under more stress," said Shaara Blome, global marketing manager for ExxonMobil Marine Lubricants. "Mobilgear SHC MT 68's balanced formulation is specially engineered to meet these challenges, helping our customers optimise equipment performance, reduce oil consumption, extend oil drain intervals and reduce maintenance costs," she said.

Mobilgear SHC MT 68 is recommended for enclosed marine gear drives including steel-on-steel spur, helical and bevel gears operating at bulk oil temperatures up to 100 deg C. It is particularly suitable for gear sets working under heavy or shock loads.

It is available at key lifting locations and shipyards worldwide. The product is supplied in five-gallon pails and 55-gallon drums. ■

Transas chooses Hatteland Display

Transas Marine has selected Hatteland Display as a supplier of the dedicated hardware for the new generation of Transas ECDIS systems.

Hatteland will present a product concept based on the state-of-the-art technology and design.

"We have been working with Hatteland Display for many years and we value the quality of the Hatteland Display products. Transas has always been committed to the setting the high standard in the marine navigation market and now we have a right partner with whom we can work to advance the quality of our products and create the optimal package for mariners worldwide", said Anders Rydinger, director product management navigation business unit Transas Marine International. ■

Seagull launches online psychometric testing tool

Computer-based training (CBT) specialist Seagull has launched an online version of APRO, the psychometric ability test tool aimed specifically at seafarers.

Seagull said that it will address what could be the shipping industry's 'Achilles heel' where safe practices are concerned.

The past decade has seen significant progress in developing shipping's safety culture, with the introduction of more sophisticated technology and improved procedures designed to prevent accidents at sea.

However, Seagull believes that too little emphasis has been placed on the ability of people on board to handle these new safety systems and procedures.

Seagull training content director, Capt Bjarke Jakobsen, said; "It is fine to develop technical solutions and procedures, but what about the people who operate and implement them? Shipping companies need to know if their on board staffs are capable of absorbing information and following procedures in a way that has the desired safety outcome."

APRO was initially developed as a

psychometric ability test in the mid-1980s in a project led by the Norwegian Marine Technology Research Institute and supported by the University of Oslo, DNV and the Norwegian Shipowners' Association.

Working with Prof Roald Bjorklund, of the University of Oslo's department of psychology, who was part of the original research and development team, Seagull has upgraded the APRO test tool and modified it so that it can be undertaken online.

Prof Bjorklund said, "It is important to recognise that APRO is a very specific tool that allows companies to find out how people react in safety related areas, measuring the time they take to do tasks and the level of accuracy and the mistakes they might make, for instance. Unlike some other psychometric tests, APRO is designed to help select people who are able to act in the right way when safety is critical."

He welcomed the advances that have been made through the partnership with Seagull. He added, "This is an important step forward and what Seagull has done with APRO is very impressive, using modern IT to allow the tests to be used on different types of computer

screens and most importantly online. Results can be kept remotely, rather than on a local computer, and the results evaluated over a period of time, for instance comparing them with a candidate's real life performance on board ship."

Seagull expected that the online APRO test would become a valuable recruitment tool, especially when recruiting cadets and junior officers, and also as part of the promotion process. It could also be used to measure capabilities at set intervals to ensure there has been no deterioration in a crew member's performance. Furthermore, APRO could be employed following accidents, as part of the investigation process to determine if mental ability played a part in the incident.

APRO is suitable for shipping companies of all types, but could be especially useful for tanker operators, who have to comply with Tanker Management and Self Assessment (TMSA) requirements. TMSA stipulates that techniques such as simulator training and computer-based, or psychometric test assessment tools must be in place to confirm competence for the job before employment. ■

MARIS launches 'Zero downtime ECDIS' service

Electronic navigation specialist MARIS has launched 'Zero downtime ECDIS', a new product support service devised to ensure that, once mandatory, Electronic Chart Display Information Systems (ECDIS) are available at all times.

The IMO has ruled that mandatory carriage of ECDIS equipment on board ship will be phased in from July 2012, starting with newly built passenger ships. The move recognises the inherent benefits of ECDIS as a way of improving the safety of navigation, such as its ability to act as a tool for identification and its automatic generation of grounding alerts.

While some shipowners intend to back up ECDIS with up-to-date traditional paper charts, many have accepted that it will be necessary to install dual systems for back up, in case one ECDIS fails.

However, to be allowed to sail in the event of such a failure, even a shipowner pursuing a policy of ECDIS redundancy will have to keep up to date paper charts in reserve.

One leading IACS member said "It is important that the ship takes all reasonable steps to repair broken equipment at the first opportunity or port. However, in some ports,

the ship may be unreasonably delayed waiting for spares or service."

According to SOLAS V/22, 16.2, while malfunctions will not necessarily make the vessel unseaworthy, or provide a reason for delaying the ship in ports where repair facilities are not readily available, suitable arrangements must be "...made by the Master to take the inoperative equipment, or unavailable information into account in planning and executing a safe voyage to a port where repairs can take place".

The leading class body commented: "In such cases, a master may request class/flag for permission to sail for example, to the next port for repair, perhaps carrying some extra paper chart if requested by the flag. Our experience is that the various flag states handle such requests somewhat differently."

The Zero downtime concept has been devised to avoid potential delays. It consists of the offer of a 'hot or cold spare' third ECDIS delivered direct to the ship so that it can always proceed to the next port of call, even if up to date paper charts are not available. The defective unit can then be shipped to the manufacturer at the shipowner's convenience for repair.

Available via subscription, Steinar

Gundersen, MARIS corporate deputy chief executive, said that the new service was part of the supplier's campaign to support customers, and the phase in of mandatory ECDIS. "The third ECDIS can either be installed as a 'hot spare' online with the dual ECDIS systems or as a 'cold spare' supplied as a plug-in unit, which the crew can install.

In the case of a cold spare it will come complete with application software, updating all application software, settings and electronic charts and will be self-configured to the exact settings of the ship, drawing on the ship's remaining ECDIS."

Gundersen said that the remaining ECDIS could then be packed away and returned to MARIS before going to a warehouse as a 'reconditioned' unit to be sent to a new customer with a similar subscription and the need for a replacement unit.

He said that Zero Downtime ECDIS service would do away with the need for service engineers to fly all over the world to rendezvous with vessels in port. "The potential for delays will be eradicated, but this will also mean that our engineers minimise their carbon footprint. MARIS places a high priority on both service and the environmental impact our services make." ■

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